

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Amy Lang Examiner #: 82324 Date: 7-20-06
 Art Unit: 1714 Phone Number 30 29057 Serial Number: 10/735831
 Mail Box and Bldg/Room Location: 10 D 30 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Nanostructured Lubricating oil

Inventors (please provide full names): Wang, Ming-Teeng

Earliest Priority Filing Date: 12-16-2003

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search claims 3, 4, and 5. See Attached.
 Thank you.

SCIENTIFIC REFERENCE BR
 Sci & Tech Inf. Ctr.

JUL 20 2006

Pat. & T.M. Office

(Sorry about any false hits on nano? which gave NaNO₂, NaNO₃, etc.)

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher: <u>ED</u>		NA Sequence (#):	STN
Searcher Phone #:		AA Sequence (#):	Dialog
Searcher Location:		Structure (#):	Questel/Orbit
Date Searcher Picked Up:		Bibliographic:	Dr. Link
Date Completed: <u>7-21-06</u>		Litigation:	Lexis/Nexis
Searcher Prep & Review Time:		Fulltext:	Sequence Systems
Clerical Prep Time:		Patent Family:	WWW/Internet
Online Time:		Other:	Other (specify)

=> FILE REG

FILE 'REGISTRY' ENTERED AT 21:06:07 ON 21 JUL 2006
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=> DISPLAY HISTORY FULL L1-

FILE 'REGISTRY' ENTERED AT 20:43:12 ON 21 JUL 2006
E SILICON OXIDE/CN

L1 2 SEA "SILICON OXIDE"/CN
E FERRIC OXIDE/CN
L2 1 SEA "FERRIC OXIDE"/CN
L3 641 SEA (SI(L)O)/ELS (L) 2/ELC.SUB
L4 430 SEA (FE(L)O)/ELS (L) 2/ELC.SUB
E GRAPHITE/CN
L5 1 SEA GRAPHITE/CN

FILE 'HCA' ENTERED AT 20:49:09 ON 21 JUL 2006

L6 781101 SEA L1 OR L3 OR (SILICON OR SI) (W) (OXIDE# OR MONOXIDE#
OR DIOXIDE#) OR SILICA# OR SIO OR SIO2
L7 226484 SEA L2 OR L4 OR (IRON# OR FERROUS# OR FERRIC# OR DIIRON#
OR TRIIRON# OR FE) (W) (OXIDE# OR MONOXIDE# OR DIOXIDE# OR
TRIOXIDE#) OR FEO OR FE2O3
L8 204719 SEA L5 OR GRAPHIT?
L9 QUE NANO?
L10 352417 SEA LUBRIC? OR LUBE# OR GREAS? OR ANTIFRIC? OR ANTIWEAR?
OR ANTICORRO? OR ANTIRUST? OR ANTIOXID? OR ANTI(W) (FRIC?
OR WEAR? OR CORRO? OR RUST? OR OXID?) OR SLICK? OR
SLIPP? OR OLEAGINOUS?
L11 25721 SEA GEAR? OR ENGINE# OR CRANKCASE? OR MOTOR# OR
TRANSMISSION? OR HYDRAUL? OR MACHINE? OR (2 OR 4 OR TWO
OR FOUR) (W) (CYCLE# OR STROKE#)) (2A) (FLUID# OR OIL#)
L12 1801 SEA L6 AND L7 AND L8
L13 48 SEA L12 AND L9
L14 1008438 SEA (MIXT# OR MIXTURE? OR BLEND? OR ADMIX? OR COMMIX? OR
IMMIX? OR INTERMIX? OR COMPOSIT? OR COMPN# OR COMPSN# OR
FORMULAT? OR INTERSPER?) /TI
L15 6 SEA L13 AND (L10 OR L11)
L16 9 SEA L13 AND L14
L17 0 SEA L15 AND L16

L18 QUE NM
L19 26 SEA L12 AND L18
L20 68 SEA L13 OR L19
L21 7 SEA L20 AND (L10 OR L11)
L22 13 SEA L20 AND L14
L23 1 SEA L21 AND L22
L24 338 SEA (L10 OR L11) AND L8 AND (L9 OR L18)
L25 29 SEA L24 AND L6
L26 19 SEA L24 AND L7
L27 7 SEA L25 AND L14
L28 2 SEA L26 AND L14
L29 26 SEA L21 OR L22 OR L23 OR L27 OR L28
L30 7 SEA L25 AND L26
L31 26 SEA L21 OR L22 OR L23 OR L27 OR L28 OR L30
L32 16 SEA L25 NOT L31
L33 11 SEA L26 NOT (L31 OR L32)
L34 49 SEA L20 NOT (L31 OR L32 OR L33)
L35 24 SEA L31 AND 1840-2003/PY,PRY
L36 15 SEA L32 AND 1840-2003/PY,PRY
L37 6 SEA L33 AND 1840-2003/PY,PRY
L38 40 SEA L34 AND 1840-2003/PY,PRY
L39 2 SEA L35 AND WANG ?/AU

=> FILE HCA

FILE 'HCA' ENTERED AT 21:07:17 ON 21 JUL 2006

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=> D L35 1-24 CBIB ABS HITSTR HITIND

L35 ANSWER 1 OF 24 HCA COPYRIGHT 2006 ACS on STN

144:174329 Nano-metal or -alloy electrode active mass

composite material and its manufacture and application. Wu, Xiaodong; Chen, Liquan; Huang, Xuejie (Institute of Physics, Chinese Academy of Sciences, Peop. Rep. China). Faming Zhuanli Shengqing Gongkai Shuomingshu CN 1595683 A 20050316, 24 pp. (Chinese).

CODEN: CNXXEV. APPLICATION: CN 2003-156774 20030910.

AB The composite material contains a nano-metal or -alloy,

and an electrode active mass; and is manufd. by. The composite material is manufd. by depositing a **nano**-metal or alloy particulates on electrode active mass particulates or the surface of an electrode plate by chem. plating. The composite material is used as an anode active mass for secondary lithium battery.

IT 1345-25-1, Iron oxide (FeO),
uses 7782-42-5, Graphite, uses
113443-18-8, Silicon oxide (SiO
)

(anode active mass contg. metal or alloy coatings for secondary lithium batteries)

RN 1345-25-1 HCA

CN Iron oxide (FeO) (8CI, 9CI) (CA INDEX NAME)

Fe=O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

RN 113443-18-8 HCA

CN Silicon oxide (SiO) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

IC ICM H01M004-24

ICS H01M010-24; H01M004-36

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 1307-96-6, Cobalt oxide (CoO), uses 1313-13-9, Manganese dioxide (MnO₂), uses 1314-62-1, Vanadium oxide (V₂O₅), uses 1314-95-0, Tin sulfide (SnS) 1317-33-5, Molybdenum sulfide (MoS₂), uses 1317-38-0, Copper oxide (CuO), uses 1317-40-4, Copper sulfide (CuS) 1345-25-1, Iron oxide (

FeO), uses 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-92-1, Lead, uses 7440-04-2, Osmium, uses 7440-05-3,

Palladium, uses 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses 7440-36-0, Antimony, uses 7440-43-9, Cadmium, uses 7440-44-0, Carbon, uses 7440-44-0D, Carbon, **graphitized** 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses **7782-42-5**, **Graphite**, uses 11101-13-6 11110-87-5 12504-41-5, Silicon sulfide (SiS) 13463-67-7, Titania, uses 13759-10-9, Silicon sulfide (SiS₂) 18282-10-5, Tin oxide (SnO₂) 21651-19-4, Tin oxide (SnO) 22205-45-4, Copper sulfide (Cu₂S) 37345-61-2 39287-23-5 39403-39-9, Gold oxide 39460-91-8 50941-27-0 77874-24-9 96539-23-0 **113443-18-8**, **Silicon oxide (SiO)** 131438-04-5 153271-61-5 352234-00-5, Ruthenium oxide (RuO₂) 459125-32-7 874749-15-2 874749-16-3 874749-17-4 874749-18-5 874749-20-9 874749-21-0 874749-22-1
(anode active mass contg. metal or alloy coatings for secondary lithium batteries)

L35 ANSWER 2 OF 24 HCA COPYRIGHT 2006 ACS on STN

143:174850 Methods and coatings for manufacturing oleophobic and hydrophobic and corrosion-resistant and dustproof and wax-condensation-resistant metal pipes and rods. Guo, Yujiang; Chen, Zhusheng (Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1441147 A 20030910, 8 pp. (Chinese).
CODEN: CNXXEV. APPLICATION: CN 2003-111189 20030314.

AB Oil-repellent and water-repellent layers contain **nano** materials 0.001-1, film-forming agents 40-79, pigments and fillers 20-50, and aids 0-39%. The **nano** materials are C23 and SiO_x. The film-forming agents contain Resin 228A 17-45, Resin 228B 2-10, Resin TY-54 30-58, and Resin 38 17-45%. The pigments and fillers are red **Fe oxide**, ferrophosphorous powder, **graphite**, mica, and/or TiO₂.

IT 1309-37-1, **Iron oxide red**, uses 7631-86-9, **Silica**, uses **7782-42-5**, **Graphite**, uses

(oleophobic and hydrophobic and corrosion-resistant and dustproof and wax-condensation-resistant coating materials for metal pipes and rods)

RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM E21B017-00

ICS C09D005-00

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 55

ST oleophobic hydrophobic dustproofing **anticorrosion** coating metal pipe

IT Coating materials

(**anticorrosive**; oleophobic and hydrophobic and corrosion-resistant and dustproof and wax-condensation-resistant coating materials for metal pipes and rods)

IT Materials

Nanostructures

(**nanomaterials**; oleophobic and hydrophobic and corrosion-resistant and dustproof and wax-condensation-resistant coating materials for metal pipes and rods)

IT 1309-37-1, Iron oxide red, uses

7631-86-9, Silica, uses 7782-42-5,

Graphite, uses 8049-19-2, Ferrophosphorus 13463-67-7,

Titania, uses 144636-50-0, uses

(oleophobic and hydrophobic and corrosion-resistant and dustproof and wax-condensation-resistant coating materials for metal pipes and rods)

L35 ANSWER 3 OF 24 HCA COPYRIGHT 2006 ACS on STN

143:45867 **Nanostructured lubricating oil**. Wang,

Ming-Theng (Taiwan). U.S. Pat. Appl. Publ. US 2005130851 A1 20050616, 4 pp. (English). CODEN: USXXCO. APPLICATION: US 2003-735831 20031216.

AB A **nanostructured lubricating oil** formed by mixing 80% of a std. viscosity **lubricating oil** with 20% of 100-200 nm-size **graphite**. Alternatively,

nanometer-size silicon oxide (about 20 nm) and nanometer-size ferric oxide (about 20 nm) may be added to the graphite-contained nanostructured lubricating oil so as to form a three-layer structure of ferric oxide-silicon-oxide-graphite, improving heat dissipating, lubricating, and wear resisting performance.

IT 1309-37-1, Ferric oxide, uses
7631-86-9, Silicon oxide, uses
7782-42-5, Graphite, uses
(nanostructured crankcase lubricating oil contg. graphite and fillers)

RN 1309-37-1 HCA
CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7631-86-9 HCA
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C10M125-00
ICS C10M125-02; C10M125-10; C10M125-26
INCL 508127000; 508113000; 508165000; 508154000
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
ST nanostructured lubricating oil multilayer
antiwear additive crankcase milled graphite;
lubricating oil additive silica ferric
oxide nanoparticle layered film
IT Lubricating oil additives
(antiwear; nanostructured crankcase
lubricating oil contg. graphite and
fillers)
IT Lubricating oils
(base oils; nanostructured crankcase

lubricating oil contg. graphite and fillers)

IT Lubricating oils
(crankcase; nanostructured crankcase lubricating oil contg. graphite and fillers)

IT Grinding (size reduction)
(filler particles to desired particle size; nanostructured crankcase lubricating oil contg. graphite and fillers)

IT Nanostructures
(layered; nanostructured crankcase lubricating oil contg. graphite and fillers)

IT Mixing
Nanoparticles
(nanostructured crankcase lubricating oil contg. graphite and fillers)

IT 1309-37-1, Ferric oxide, uses
7631-86-9, Silicon oxide, uses
7782-42-5, Graphite, uses
(nanostructured crankcase lubricating oil contg. graphite and fillers)

L35 ANSWER 4 OF 24 HCA COPYRIGHT 2006 ACS on STN

142:59286 Antiadhesive high temperature resistant layers. Aslan, Mesut; Drumm, Robert; Endres, Klaus; Nair, Hareesh; Reinhard, Bernd; Schmidt, Helmut (Institut Fuer Neue Materialien Gemeinnuetzige GmbH, Germany; Leibniz-Institut Fuer Neue Materialien Gemeinnuetzige GmbH). PCT Int. Appl. WO 2004110671 A2 20041223, 25 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG; TR. (German). CODEN: PIXXD2. APPLICATION: WO 2004-EP6326 20040611. PRIORITY: DE 2003-10326815 20030613.

AB A substrate with an antiadhesive coating is obtained by application of a coating compn. contg. (1) solid particles of a sepg. agent,

except BN and (2) a binder comprising surface-modified nanoscale solid particles. Preferably, the binder comprises a **nanocomposite**. The layers are anti-adhesive and stable at high temps. Typically, the layers are suitable as a mold interface for casting of metals and as **antifriction** materials.

IT 7782-42-5, **Graphite**, uses
(antiadhesive high temp. resistant layers)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IT 7631-86-9, **Silica**, uses
(**nanoparticles** in antiadhesive high temp. resistant layers)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IC ICM B22C003-00

CC 49-5 (Industrial Inorganic Chemicals)
Section cross-reference(s): 56

IT **Antifriction** materials
(antiadhesive high temp. resistant layers)

IT Coating materials
(**antifriction**; antiadhesive high temp. resistant layers)

IT **Nanoparticles**
(in antiadhesive high temp. resistant layers)

IT 1317-33-5, Molybdenum sulfide (MoS₂), uses 7782-42-5,
Graphite, uses 12034-77-4, Niobium selenide (NbSe₂)
12039-55-3, Tantalum selenide (TaSe₂) 12067-46-8, Tungsten
selenide (WSe₂) 12136-97-9, Niobium sulfide (NbS₂) 12138-09-9,
Tungsten sulfide (WS₂) 12143-72-5, Tantalum sulfide (TaS₂)
12344-67-1, Antimony arsenic sulfide (AsSbS₄)
(in antiadhesive high temp. resistant layers)

IT 1306-38-3, Cerium oxide (CeO₂), uses 1314-23-4, Zirconia, uses
1314-36-9, Yttria, uses 1314-61-0, Tantalum oxide (Ta₂O₅)

1332-37-2, **Iron oxide**, uses 1344-28-1,
 Alumina, uses 7631-86-9, **Silica**, uses
 13463-67-7, Titania, uses 18282-10-5, Tin oxide (SnO₂)
 24623-77-6, Aluminum hydroxide oxide (AlOOH)
 (nanoparticles in antiadhesive high temp. resistant
 layers)

L35 ANSWER 5 OF 24 HCA COPYRIGHT 2006 ACS on STN
 141:413404 method to produce water dispersible-type metalworking
 composite. Maeda, Akio; Sasaki, Takahisa (Chiyoda Kemikaru
 K. K., Japan). Jpn. Kokai Tokkyo Koho JP 2004315762 A2 20041111, 17
 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-115322
 20030421.

AB The composite contains 50-2000 ppm of ultrafine particle, 50-6000
 ppm of a dispersant, an extreme-pressure agent, a corrosion
 inhibitor, and an antifoaming agent. The ultrafine particle has an
 av. particle size of 1-1000 nm; and is selected from layer
 compds. of MoS₂, WS₂, ZnS, CaCO₃, **graphite**, BN, talc,
 mica, montmorillonite, kaolinite, melamine cyanurate, Mg-K-Ti oxide,
 and Li-K-Ti oxide; organometallic salts of Ca, Mg, Al, Zn, and Ba
 salts of capric, lauric, myristic, palmitic, stearic, oleic,
 linoleic, and linolenic acids; and inorg. metals of CaO,
 SiO₂, TiO₂, Al₂O₃, and Si₃N₄. The dispersant contains Na
 CM-cellulose, polyvinyl alc., polycarboxylic acid-type polymeric
 surfactant, polyoxyethylene alkylphenol ether, polyoxyethylene-
 polyoxypropylene copolymer, formalin condensate of Na
 naphthalene-sulfonate, Na lignosulfonate, modified Poly-carboxylate,
 polyethylene-imine, ethylene oxide adducts, glycol ethers, sulfate
 esters, acrylic acid, maleic acid copolymer Na salt, polyoxyethylene
 sorbitan trioleate, dialkyl-sulfo succinate salts. The product has
 dispersion stability, and provide excellent metalworking performance
 in low concns.

IT 7631-86-9, **Silica**, uses 7782-42-5,
Graphite, uses
 (method to produce water dispersible-type metalworking agent)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C10M173-02

ICS C10M103-02; C10M103-06; C10M105-24; C10M125-02; C10M125-22; C10M125-26; C10M125-30; C10M129-40; C10M145-04; C10M145-30; C10M145-36; C10M145-40; C10M177-00; C10N010-04; C10N010-06; C10N010-12; C10N020-06; C10N030-04; C10N030-06

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

ST water dispersible metalworking composite **lubricating** oil

IT **Lubricating** oil additives

(extreme-pressure; method to produce water dispersible-type metalworking agent)

IT **Lubricating** oils

(metalworking; method to produce water dispersible-type metalworking agent)

IT 75-21-8, Ethylene oxide, uses 79-10-7, Acrylic acid, uses 142-17-6, Oleic acid, calcium salt 463-40-1, Linolenic acid 471-34-1, Calcium carbonate, uses 542-42-7, Palmitic acid, calcium salt 555-35-1, Palmitic acid, aluminum salt 557-04-0, Stearic acid, magnesium salt 557-05-1, Stearic acid, zinc salt 557-07-3, Oleic acid, zinc salt 591-65-1, Oleic acid, barium salt 637-12-7, Stearic acid, aluminum salt 645-17-0 688-37-9, Oleic acid, aluminum salt 1305-78-8, Calcium oxide, uses 1314-98-3, Zinc sulfide, uses 1317-33-5, Molybdenum sulfide, uses 1318-74-7, Kaolinite, uses 1318-93-0, Montmorillonite, uses 1321-69-3 1344-28-1, Alumina, uses 1555-53-9, Oleic acid, magnesium salt 1592-23-0, Stearic acid, calcium salt 2452-01-9, Lauric acid, zinc salt 2601-98-1, Palmitic acid, magnesium salt 4040-48-6, Lauric acid, magnesium salt 4040-50-0, Myristic acid, aluminum salt 4086-70-8, Myristic acid, magnesium salt 4696-56-4, Lauric acid, calcium salt 4696-57-5, Lauric acid, barium salt 4991-47-3, Palmitic acid, zinc salt 5460-94-6 6798-78-3, Linolenic acid, zinc salt 6865-35-6, Stearic acid, barium salt 7230-93-5, Lauric acid, aluminum salt 7631-86-9, **Silica**, uses 7782-42-5, **Graphite**, uses 8061-51-6, Sodium lignosulfonate 9002-89-5, Polyvinyl alcohol 9002-98-6 9003-11-6, Polyoxyethylene-polyoxypropylene copolymer 9004-32-4, Sodium carboxymethylcellulose 9005-70-3, Polyoxyethylene sorbitan

trioleate 10043-11-5, Boron nitride, uses 10196-66-4, Myristic acid, barium salt 12033-89-5, Silicon nitride, uses 12138-09-9, Tungsten sulfide 13014-44-3 13040-17-0 13098-41-4 13463-67-7, Titania, uses 13747-30-3 14807-96-6, Talc, uses 15284-51-2, Myristic acid, calcium salt 19704-83-7, Linoleic acid, calcium salt 22620-93-5 23410-25-5, Palmitic acid, barium salt 24871-38-3 37640-57-6, Melamine cyanurate 38582-30-8 39290-90-9, Magnesium potassium titanate 42966-30-3 45253-01-8 108639-61-8

(method to produce water dispersible-type metalworking agent)

L35 ANSWER 6 OF 24 HCA COPYRIGHT 2006 ACS on STN

141:107139 Flame retardant polymer **compositions** and cured article, adhesive, sealant or coating. Kotzev, Dimiter Lubomirov; Diakoumakos, Constantinos D. (Huntsman Advanced Materials Switzerland GmbH, Switz.). PCT Int. Appl. WO 2004056913 A1 20040708, 57 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-GB5503 20031218. PRIORITY: GB 2002-29810 20021220.

AB Flame retardant compns. comprise (a) ≥ 1 particulate material which expands on the application of heat and (b) ≥ 1 particulate **nano-filler**, together with ≥ 1 polymer and/or ≥ 1 curable monomer or oligomer, optionally certain Si-based materials. Flame-retardant compns. may also comprise polyorganosiloxanes contg. ≥ 1 functional groups selected from amino, hydroxyl, methacrylic, acrylic and epoxy groups. A flame-retardant compn. contained dispersion of **Nanofil** 32 and epoxy (MY 0511) 15.40, tetraethylpentamine 3.74, and expandable **graphite** 1.00 parts, having an extinction time (BSS 7230) 3 s.

IT 1309-37-1, **Ferric oxide**, uses
7631-86-9, **Silicon oxide**, uses
(flame retardant polymer compns. contg. thermally expandable particle, **nano-filler** for enhanced flame resistance and smoke suppression)

RN 1309-37-1 HCA
CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7631-86-9 HCA
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

IC ICM C08K003-00
 ICS C08K003-04; C08K003-34; C08L083-04
CC 37-6 (Plastics Manufacture and Processing)
ST polymer **nanoclay** expandable **graphite** flame
 retardant adhesive sealant coating
IT Coating materials
 (fire-resistant; flame retardant polymer compns. contg. thermally
 expandable particle, **nano**-filler for enhanced flame
 resistance and smoke suppression)
IT Adhesives
 Fireproofing agents
 Sealing compositions
 (flame retardant polymer compns. contg. thermally expandable
 particle, **nano**-filler for enhanced flame resistance and
 smoke suppression)
IT Epoxy resins, uses
 Polysiloxanes, uses
 Polyurethanes, uses
 (flame retardant polymer compns. contg. thermally expandable
 particle, **nano**-filler for enhanced flame resistance and
 smoke suppression)
IT Molded plastics, uses
 (flame retardant polymer compns. contg. thermally expandable
 particle, **nano**-filler for enhanced flame resistance and
 smoke suppression)
IT 557-04-0, Magnesium stearate 557-05-1, Zinc stearate 1305-62-0,
 Calcium hydroxide, uses 1309-37-1, **Ferric**
 oxide, uses 1309-42-8, Magnesium hydroxide 1332-77-0,
 Potassium tetraborate 1343-88-0, Magnesium silicate
 7631-86-9, **Silicon oxide**, uses
 7772-99-8, Stannous chloride, uses 10043-11-5, Boron nitride, uses
 10213-79-3, Sodium metasilicate pentahydrate 11098-84-3, Ammonium
 molybdate 11098-99-0, Molybdenum oxide 12033-89-5, Silicon

nitride, uses 12040-58-3, Calcium borate 12777-87-6, Grafguard 220-80B 13463-67-7, Titanium oxide, uses 16183-12-3, Lead phthalate 21645-51-2, Aluminum trihydroxide, uses 292833-56-8, Cloisite 25A 299206-16-9, Cloisite 10A 646041-97-6, **Nanofil 32**

(flame retardant polymer compns. contg. thermally expandable particle, **nano**-filler for enhanced flame resistance and smoke suppression)

IT 9011-14-7, PMMA 9016-00-6, Polydimethylsiloxane 31305-88-1, MY-0510 31900-57-9, Polydimethylsiloxane 718616-39-8, MY 0511 (flame retardant polymer compns. contg. thermally expandable particle, **nano**-filler for enhanced flame resistance and smoke suppression)

IT 477936-08-6, EPIBOND 1590 (flame retardant polymer compns. contg. thermally expandable particle, **nano**-filler for enhanced flame resistance and smoke suppression)

L35 ANSWER 7 OF 24 HCA COPYRIGHT 2006 ACS on STN

140:392411 Coating materials containing **anticorrosive** pigments. Liu, Zancheng (Liangang Enterprise Department, Hualing Pipeline Co., Ltd., Hunan, Peop. Rep. China). Faming Zhuanli Shengqing Gongkai Shuomingshu CN 1382755 A 20021204, 9 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2001-114429 20010425.

AB The **anticorrosive** coating is composed of modified coal-tar pitch 28-35%, org. high mol. wt.-modified resin 22-30%, active pigment **anti-rusting** agent A 14-16%, active pigment **anti-rusting** agent B 15-17%, active pigment **anti-rusting** agent B' 1.5-2.5%, corrosion inhibitor C 3.5-4.5%, adjuvant D 1.5-2.5%, adjuvant E 2.0-3.5%, temp.-resistant agent F 6-8%, and solvent. The resin is epoxy acrylic resin or epoxy polyurethane resin. The active pigment **anti-rusting** agent A is Zn₃(PO₄)₂, diphenylguanidine chromate, Ba₃(PO₄)₂. The active pigment **anti-rusting** agent B is Pb₃O₄, SrCrO₄, mica **iron oxide**, Al powder or TiO₂. The active pigment **anti-rusting** agent B' is the **nanometer** metal oxide TiO₂, ZnO, SiO₂ or Fe₂O₃. The corrosion inhibitor C is tannic acid, imidazoline, K₄[Fe(CN)₆] and tributylamine octanoate. The adjuvant D is flaxseed oil or tung oil and Sn(II) octanoate. The adjuvant E is NaNO₂, K₄[Fe(CN)₆] and oxidized paraffin wax. The temp.-resistant agent F

is graphite, ceramic powder and polybenzimidazole. The mixed solvent is xylene, propanediol Bu ether, butanol, and acetone.

IT 1309-37-1, Ferric oxide, uses
7631-86-9, Silica, uses
(anticorrosive pigment; coating materials contg.
anticorrosive pigments)

RN 1309-37-1 HCA
CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7631-86-9 HCA
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si=O

IT 7782-42-5, Graphite, uses
(heat-resistant agent; coating materials contg.
anticorrosive pigments)
RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C09D195-00
ICS C09D005-08
CC 42-10 (Coatings, Inks, and Related Products)
ST acrylic epoxy anticorrosive pigment coating compn; epoxy
polyurethane anticorrosive pigment coating compn
IT Tannins
(anticorrosive agent; coating materials contg.
anticorrosive pigments)
IT Coating materials
(anticorrosive; coating materials contg.
anticorrosive pigments)
IT Powders
(ceramic, heat-resistant agent; coating materials contg.
anticorrosive pigments)
IT Coal tar pitch
(coating materials contg. anticorrosive pigments)
IT Linseed oil
Tung oil

(coating materials contg. **anticorrosive** pigments)

IT Acrylic polymers, uses
Polyurethanes, uses
(epoxy; coating materials contg. **anticorrosive** pigments)

IT Polybenzimidazoles
(heat-resistant agent; coating materials contg. **anticorrosive** pigments)

IT Mica-group minerals, uses
(mica iron red, **anticorrosive** pigment; coating materials contg. **anticorrosive** pigments)

IT Paraffin waxes, uses
(oxidized; coating materials contg. **anticorrosive** pigments)

IT Epoxy resins, uses
(polyurethane-; coating materials contg. **anticorrosive** pigments)

IT Ceramics
(powders, heat-resistant agent; coating materials contg. **anticorrosive** pigments)

IT 504-75-6, Imidazoline 13943-58-3, Potassium ferrocyanide
56863-01-5
(**anticorrosive** agent; coating materials contg. **anticorrosive** pigments)

IT 1309-37-1, Ferric oxide, uses
1314-13-2, Zinc oxide, uses 1314-41-6, Mineral Orange 7429-90-5,
Aluminum, uses 7631-86-9, Silica, uses
7779-90-0, Zinc phosphate 7789-06-2, Strontium chromate
13463-67-7, Titania, uses 13847-18-2, Barium phosphate
39049-47-3, Diphenylguanidine chromate
(**anticorrosive** pigment; coating materials contg. **anticorrosive** pigments)

IT 67-64-1, Acetone, uses 71-36-3, Butanol, uses 1330-20-7, Xylene,
uses 29387-86-8, Propylene glycol monobutyl ether
(coating materials contg. **anticorrosive** pigments)

IT 301-10-0, Stannous octanoate 7632-00-0, Sodium nitrite
(coating materials contg. **anticorrosive** pigments)

IT 7782-42-5, Graphite, uses
(heat-resistant agent; coating materials contg. **anticorrosive** pigments)

139:198156 Friction and wear properties of PTFE composites filled with different mix materials made of **nanocrystalline** materials and **graphite**. He, Chunxia (Engineering College, Nanjing Agricultural University, Nanjing, 210031, Peop. Rep. China). Fuhe Cailiao Xuebao, 19(6), 111-115 (Chinese) 2002. CODEN: FCXUEC. ISSN: 1000-3851. Publisher: Fuhe Cailiao Xuebao Bianjibu.

AB The friction and wear properties of polytetrafluoroethylene (PTFE) composites filled with different mix materials made of **nanocryst.** (**silica**, **titania**, and **alumina**) and **graphite** were studied. The friction and wear tests were carried out using MM-200 wear tester. The worn surfaces of PTFE composites were examd. by the scanning elec. microscopy (SEM). It is found that the addn. of **nanocryst.** and **graphite** not only increases the wear resistance of PTFE, but also results in changing the friction coeff. of the material. The three materials have different properties of **anti-wear**. The **SiO₂-graphite-PTFE** has excellent tribol. property. The raising of the wear load increases the wear mass loss of PTFE composites.

IT 7631-86-9, **Silica**, properties 7782-42-5,
Graphite, properties
(friction and wear properties of PTFE composites filled with different mix materials made of **nanocryst.** materials and **graphite**)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 57
ST wear resistance friction polytetrafluoroethylene **nanocryst**
composite
IT Composites

Fillers
Friction
Hardness (mechanical)
 Nanocrystalline materials
Polymer morphology
 (friction and wear properties of PTFE composites filled with different mix materials made of **nanocryst.** materials and **graphite**)
IT Fluoropolymers, properties
 (friction and wear properties of PTFE composites filled with different mix materials made of **nanocryst.** materials and **graphite**)
IT Wear
 (resistance; friction and wear properties of PTFE composites filled with different mix materials made of **nanocryst.** materials and **graphite**)
IT 1344-28-1, Alumina, properties 7631-86-9, **Silica**, properties 7782-42-5, **Graphite**, properties 13463-67-7, Titania, properties
 (friction and wear properties of PTFE composites filled with different mix materials made of **nanocryst.** materials and **graphite**)
IT 9002-84-0, Polytetrafluoroethylene
 (friction and wear properties of PTFE composites filled with different mix materials made of **nanocryst.** materials and **graphite**)

L35 ANSWER 9 OF 24 HCA COPYRIGHT 2006 ACS on STN
138:325161 Manufacture of amber-free heat-absorbing blue soda-lime glass compositions for automobile windows. Boulos, Edward Nashed; Jones, James Victor (Visteon Global Technologies, Inc., USA). Brit. UK Pat. Appl. GB 2381269 A1 20030430, 35 pp. (English).
CODEN: BAXXDU. APPLICATION: GB 2002-19791 20020827. PRIORITY: US 2001-2001/74626 20011026.

AB Blue heat-absorbing soda-lime **silica** glass for automobile windows comprises, in wt.%, 68-75% **SiO₂**, 10-18% **Na₂O**, 5-15% **CaO**, 0-10% **MgO**, 0-5% **Al₂O₃**, and 0-5% **K₂O**, where **CaO** + **MgO** is 6-15% and **Na₂O** + **K₂O** is 10-20%, and colorants comprising: 0.3-0.8% total **iron oxide** as **Fe₂O₃** (with ratio of **FeO**/total **Fe** as **Fe₂O₃** being 0.34-0.62); 0.05-0.5% **MnO₂**; 0-0.3% **TiO₂** and 0-0.8% **CeO₂**. The 4-mm thick colored glass has 65-81% light transmittance using illuminant A (LTA) and

using illuminant C has a dominant wavelength of 488-494 nm with an excitation purity of 4-11%. The higher than normal ratio of FeO/total Fe as Fe₂O₃ is achieved by the addn. of a reductant (such as anthracite coal, blast furnace slag, slag from coal-fired furnace, coke and/or graphite) to the glass mix.

IT 1309-37-1, **Ferric oxide**, uses
1345-25-1, **Ferrous oxide**, uses
(colorants in glass; manuf. of amber-free heat-absorbing blue soda-lime glass compns. for automobile windows)

RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1345-25-1 HCA

CN Iron oxide (FeO) (8CI, 9CI) (CA INDEX NAME)

Fe=O

IT 7631-86-9, **Silica**, processes
(in blue soda-lime glass; manuf. of amber-free heat-absorbing blue soda-lime glass compns. for automobile windows)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 7782-42-5, **Graphite**, uses
(reducing agents; manuf. of amber-free heat-absorbing blue soda-lime glass compns. for automobile windows)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C03C004-02
ICS C03C003-087; C03C003-095

CC 57-1 (Ceramics)

Section cross-reference(s): 73

IT 1306-38-3, **Cerium oxide** (CeO₂), uses 1309-37-1,

Ferric oxide, uses 1313-13-9, Manganese oxide (MnO₂), uses 1345-25-1, **Ferrous oxide**, uses 13463-67-7, Titanium oxide (TiO₂), uses (colorants in glass; manuf. of amber-free heat-absorbing blue soda-lime glass compns. for automobile windows)

IT 1305-78-8, Calcium oxide (CaO), processes 1309-48-4, Magnesium oxide (MgO), processes 1313-59-3, Sodium oxide, processes 1344-28-1, Alumina, processes 7631-86-9, **Silica**, processes 12136-45-7, Potassium oxide, processes (in blue soda-lime glass; manuf. of amber-free heat-absorbing blue soda-lime glass compns. for automobile windows)

IT 7782-42-5, **Graphite**, uses (reducing agents; manuf. of amber-free heat-absorbing blue soda-lime glass compns. for automobile windows)

L35 ANSWER 10 OF 24 HCA COPYRIGHT 2006 ACS on STN

137:174998 Dental and medical polymer **composites** and **compositions**. Vallittu, Pekka; Lassila, Lippo; Skrifvars, Mikael; Viljanen, Eeva; Yli-Urpo, Antti (Finland). PCT Int. Appl. WO 2002062901 A1 20020815, 30 pp. DESIGNATED STATES: W:

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-FI87 20020206. PRIORITY: FI 2001-222 20010206; US 2001-2001/PV266476 20010206.

AB The invention relates to polymerizable multifunctional polymer composites and compns., which are suitable for dental and medical applications, such as dental prostheses, filling materials, implants and the like. It also relates to a method for the manuf. of such polymerizable multifunctional polymer composites and compns., and to the use of said multifunctional polymer composites and compns. in dental and medical applications. A multifunctional polymer composite or compn. is manufd. from 30-99% of a monomer mixt. contg. 30-99% of a dendrimer or a combination of dendrimers and 1-70% of a reactive solvent or a combination of reactive solvents, and 0.1-70% of a **nanofiller** (an org., inorg., or hybrid **nanofiller**). For example, a hyperbranched polymer with

methacrylic end-groups (HBP-1, dendrimer made from pentaerythritol, 1,2,4-benzenetricarboxylic anhydride, glycidyl methacrylate and methacrylic anhydride) Me methacrylate (MMA), camphorquinone (CQ) and 2-(N,N-dimethylamino)ethyl methacrylate (DMA EMA) were mixed in 3 different wt. ratios at room temp. The mixts. were stored in a closed container in refrigerator at a temp. < 10° and left to stand for one day to ensure complete mixing of the components. Disc shaped samples (diam. 5.5 mm, thickness 0.75 mm) were polymd. with blue light (400-520 nm) for 40 s. Degree of conversion of multifunctional composites were 56.2, 64.2 and 65.5% for samples contg. 78.4, 76.0, and 73.6% HBP-1, resp.

IT 7782-42-5, Graphite, biological studies
(fibers, reinforcement with; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IT 14808-60-7, Quartz, biological studies
(**nanofiller**; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
RN 14808-60-7 HCA
CN Quartz (SiO₂) (9CI) (CA INDEX NAME)

O==Si==O

IC ICM C08L101-02
ICS C08L101-12; A61K006-083; A61L027-00
CC 63-7 (Pharmaceuticals)
Section cross-reference(s): 37
IT Dental materials and appliances
(adhesives; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
IT Glass, biological studies
(barium-contg., **nanofillers**; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

- IT Shear
 - (bond; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Dental materials and appliances
 - (bridges; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Drug delivery systems
 - (carriers; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Polymers, biological studies
 - (co-; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Dental materials and appliances
 - (coatings; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Prosthetic materials and Prosthetics
 - (composites, implants; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Dental materials and appliances
 - Prosthetic materials and Prosthetics
 - (composites; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Antimicrobial agents
 - Antioxidants**
 - Bending strength
 - Coloring materials
 - Density
 - Drugs
 - Plasticizers
 - Polymerization
 - Polymerization catalysts
 - (dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Polymers, biological studies
 - (dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Dendritic polymers
 - Monomers
 - (dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)
- IT Prosthetic materials and Prosthetics

(endoprosthetic; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Animal tissue

(engineering, guides; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Polyolefin fibers

(ethylene, reinforcement with; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Dental materials and appliances

(implants; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Alcohols, biological studies

Alkanes, biological studies

Ketones, biological studies

(inert solvents; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Animal tissue culture

(matrixes; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Ceramics

(**nanofillers**; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Glass, biological studies

Silica gel, biological studies

Silicates, biological studies

Silsesquioxanes

(**nanofillers**; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Particle size

(of fillers; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Clusters

(org. **nanofillers**; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Prosthetic materials and Prosthetics

(orthopedic; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Polymerization
(photopolymn.; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Contraction (mechanical)
(polymn.; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Solvents
(reactive; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Carbon fibers, biological studies
Glass fibers, biological studies
(reinforcement with; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT Engineering
(tissue, guides; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT 446821-78-9
(dendrimer; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT 2867-47-2, 2-(N,N-Dimethylamino)ethyl methacrylate 10373-78-1, Camphorquinone
(dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT 198840-60-7
(dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT 7782-42-5, Graphite, biological studies
(fibers, reinforcement with; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT 9002-88-4, Polyethylene
(fibers, reinforcement with; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT 13463-67-7, Titania, biological studies
(gels, **nanofillers**; dental and medical polymer composites contg. monomer, dendrimer, reactive solvent, and **nanofiller**)

IT 9011-14-7, Poly(methyl methacrylate) 25721-76-0, Polyethylene glycol dimethacrylate 25852-47-5, Polyethylene glycol dimethacrylate
(**nanofiller**; dental and medical polymer composites

contg. monomer, dendrimer, reactive solvent, and
nanofiller)

IT 1344-28-1, Aluminum oxide, biological studies 14808-60-7,
 Quartz, biological studies

(**nanofiller**; dental and medical polymer composites

contg. monomer, dendrimer, reactive solvent, and
nanofiller)

IT 79-10-7D, Acrylic acid, alkyl esters, polymers 79-41-4D,
 Methacrylic acid, alkyl esters, polymers

(**nanofillers**; dental and medical polymer composites

contg. monomer, dendrimer, reactive solvent, and
nanofiller)

IT 50867-57-7D, Dimethacrylic acid, alkyl esters 59913-86-9D,
 Diacrylic acid, alkyl esters

(**nanofillers**; dental and medical polymer composites

contg. monomer, dendrimer, reactive solvent, and
nanofiller)

IT 80-62-6, Methyl methacrylate 97-63-2, Ethyl methacrylate
 97-88-1, Butyl methacrylate 2210-28-8, Propyl methacrylate
 (reactive solvent; dental and medical polymer composites contg.
 monomer, dendrimer, reactive solvent, and **nanofiller**)

IT 64-17-5, Ethanol, biological studies 67-56-1, Methanol, biological
 studies 67-64-1, Acetone, biological studies 109-99-9,
 Tetrahydrofuran, biological studies 110-54-3, Hexane, biological
 studies 110-82-7, Cyclohexane, biological studies
 (solvent; dental and medical polymer composites contg. monomer,
 dendrimer, reactive solvent, and **nanofiller**)

L35 ANSWER 11 OF 24 HCA COPYRIGHT 2006 ACS on STN

134:357569 **Composite nanospheres** and their

conjugates with biomolecules. Elaissari, Abdelhamid; Bosc, Eric;
 Pichot, Christian; Mandrand, Bernard; Bibette, Jerome (Bio Merieux,
 Fr.; Centre National de la Recherche Scientifique; Mondain-Monval,
 Olivier). PCT Int. Appl. WO 2001033223 A1 20010510, 28

pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,
 BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB,
 GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
 LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL,
 PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,
 UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE,
 BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE,
 IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (French).

CODEN: PIXXD2. APPLICATION: WO 2000-FR3085 20001106. PRIORITY: FR 1999-14194 19991105.

AB The invention concerns composite **nanospheres** having a diam. ranging between about 50 and 1000 nm plus or minus 5, preferably between about 100 and 500 nm plus or minus 5 and advantageously between 100 and 200 nm plus or minus 5, and comprising an essentially liq. core consisting of an org. phase and inorg. **nanoparticles**, distributed inside the org. phase, and a skin consisting of at least a hydrophilic polymer derived from the polymn. of at least one water sol. monomer, in particular N-alkylacrylamide or a N-N-dialkylacrylamide; conjugates derived from said **nanospheres**; their prepn. methods and their uses. Composite **nanospheres** with 192 nm diam. were prep'd. by polymn. of styrene, N-isopropylacrylamide-methylene bisacrylamide, and methacrylic acid in an emulsion. The amt. of **iron oxide** in the **nanospheres** was 75%.

IT 1309-38-2, Magnetite, biological studies 1317-60-8, Hematite, biological studies 7631-86-9, Silica, biological studies 7782-42-5, Graphite, biological studies (composite **nanospheres** and their conjugates with biomols.)

RN 1309-38-2 HCA

CN Magnetite (Fe3O4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Fe	3	7439-89-6

RN 1317-60-8 HCA

CN Hematite (Fe2O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Fe	2	7439-89-6

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM G01N033-543

ICS G01N033-546

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 38

ST composite pharmaceutical **nanosphere** conjugate biomol

IT Diagnosis

(agents; composite **nanospheres** and their conjugates with biomols.)

IT Oligonucleotides

(biotinylated; composite **nanospheres** and their conjugates with biomols.)

IT Catalysts

Chelating agents

Crosslinking agents

Fluorescent substances

Luminescent substances

Particle size

Radioactive substances

Surfactants

(composite **nanospheres** and their conjugates with biomols.)

IT Peroxides, uses

Peroxsulfates

(composite **nanospheres** and their conjugates with biomols.)

IT Antibodies

(composite **nanospheres** and their conjugates with biomols.)

IT Bentonite, biological studies

(composite **nanospheres** and their conjugates with biomols.)

- IT Carbon black, biological studies
(composite **nanospheres** and their conjugates with biomols.)
- IT Clays, biological studies
(composite **nanospheres** and their conjugates with biomols.)
- IT DNA
(composite **nanospheres** and their conjugates with biomols.)
- IT Enzymes, biological studies
(composite **nanospheres** and their conjugates with biomols.)
- IT Ferrites
(composite **nanospheres** and their conjugates with biomols.)
- IT Kaolin, biological studies
(composite **nanospheres** and their conjugates with biomols.)
- IT Ligands
(composite **nanospheres** and their conjugates with biomols.)
- IT Nucleic acids
(composite **nanospheres** and their conjugates with biomols.)
- IT Oxides (inorganic), biological studies
(composite **nanospheres** and their conjugates with biomols.)
- IT Peptides, biological studies
(composite **nanospheres** and their conjugates with biomols.)
- IT Polynucleotides
(composite **nanospheres** and their conjugates with biomols.)
- IT Proteins, general, biological studies
(composite **nanospheres** and their conjugates with biomols.)
- IT Fatty acids, biological studies
(derivs.; composite **nanospheres** and their conjugates with biomols.)
- IT Polymers, biological studies
(hydrophobic; composite **nanospheres** and their conjugates with biomols.)

IT Drug delivery systems
(**nanoparticles**; composite **nanospheres** and
their conjugates with biomols.)

IT Salts, uses
(of peroxy acids; composite **nanospheres** and their
conjugates with biomols.)

IT 80-15-9, Cumene hydroperoxide 2589-57-3, Dimethyl
2,2'-azobis(2-methylpropionate) 2638-94-0, 4,4'-Azobis(4-
cyanovaleric acid) 2997-92-4 7722-84-1, Hydrogen peroxide, uses
7727-21-1, Potassium persulfate 7727-54-0, Ammonium persulfate
15593-29-0, Sodium persulfate 19706-80-0, 2,2'-Azobis(2-
cyanopropanol)
(composite **nanospheres** and their conjugates with
biomols.)

IT 109-66-0, Pentane, uses 110-54-3, Hexane, uses 111-65-9, Octane,
uses 111-84-2, Nonane 112-40-3, Dodecane 124-18-5, Decane
142-82-5, Heptane, uses 1120-21-4, Undecane
(composite **nanospheres** and their conjugates with
biomols.)

IT 9003-53-6P, Polystyrene 9010-92-8P, Methacrylic acid styrene
copolymer 25087-26-7P, Polymethacrylic acid
(composite **nanospheres** and their conjugates with
biomols.)

IT 58-85-5, Biotin 77-92-9, Citric acid, biological studies
112-80-1, Oleic acid, biological studies 151-21-3, Sodium dodecyl
sulfate, biological studies 1309-38-2, Magnetite,
biological studies 1313-99-1, Nickel oxide, biological studies
1314-13-2, Zinc oxide, biological studies 1317-60-8,
Hematite, biological studies 1332-37-2, **Iron**
oxide, biological studies 1344-28-1, Alumina, biological
studies 1344-70-3, Copper oxide 7440-02-0D, Nickel, alloys,
biological studies 7440-48-4D, Cobalt, alloys, biological studies
7631-86-9, **Silica**, biological studies 7664-93-9,
Sulfuric acid, biological studies 7782-42-5,
Graphite, biological studies 9013-20-1, Streptavidin
11104-61-3, Cobalt oxide 11129-60-5, Manganese oxide 12063-10-4,
Manganese ferrite 12168-54-6, Nickel ferrite 12645-49-7,
Manganese zinc ferrite 13463-67-7, Titanium oxide, biological
studies
(composite **nanospheres** and their conjugates with
biomols.)

L35 ANSWER 12 OF 24 HCA COPYRIGHT 2006 ACS on STN
134:223671 Preparation of waterproofing wear resistant self-lubricating composite material. Wang, Qihua; Chen, Jianmin; Liu, Weimin; Li, Tongsheng (Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Peop. Rep. China). Faming Zhuanli Shengqing Gongkai Shuomingshu CN 1270188 A 20001018, 7 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 2000-106677 20000417.

AB The material comprises peek 35-80, polyimide 5-50, **graphite** 5-40, **SiC nanoparticles** 2.5-20, and **SiO₂** **nanoparticles** 0-20 wt.%, where the **SiC** and **SiO₂** **nanoparticles** have a diam. of <100 nm; the particle size of the **graphite** is <25 μ m; the viscosity of the peek is 0.6-0.9; and the polyimide is melttable. The material is prep'd. by dispersing **SiC** and **SiO₂** in solvent (ethanol or chlorohydrocarbon) by ultrasonic treatment, adding peek, polyimide, and **graphite**, ball milling or ultrasonic treating, drying, loading into mold, pressing to 3 MPa, heating at 10°/min to 300-350°, holding for 15 min, increasing pressure to 5-15 MPa, heating to 360-380°, holding for 10-60 min, cooling, and demolding.

IT 7631-86-9, **Silica**, uses 7782-42-5,
Graphite, uses
(starting material; for prepn. of waterproofing wear resistant self-lubricating composite material)

RN 7631-86-9 HCA
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C08L071-00
ICS C08K003-36; F16N015-04
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 57
ST waterproofing wear resistant self **lubricating** composite

material; peek polyimide **graphite** composite material;
silicon carbide **silica** composite material

IT **Nanoparticles**
(for prepn. of waterproofing wear resistant self-
lubricating composite material)

IT Abrasion-resistant materials
Water-resistant materials
(prepn. of waterproofing wear resistant self-**lubricating**
composite material)

IT **Antifriction** materials
(self-**lubricating**; prepn. of waterproofing wear
resistant self-**lubricating** composite material)

IT Polyimides, uses
(starting material; for prepn. of waterproofing wear resistant
self-**lubricating** composite material)

IT Vibration
(ultrasonic; in prepn. of waterproofing wear resistant self-
lubricating composite material)

IT 409-21-2, Silicon carbide (SiC), uses 7631-86-9,
Silica, uses 7782-42-5, **Graphite**, uses
31694-16-3, Peek
(starting material; for prepn. of waterproofing wear resistant
self-**lubricating** composite material)

L35 ANSWER 13 OF 24 HCA COPYRIGHT 2006 ACS on STN

134:211050 Iron-based powder **blends** with alloying additives,
lubricant, and colloidal flow promoter for prevention of
particle-size segregation in handling. Arvidsson, Johan; Vidarsson,
Hilmar (Hoeganaes AB, Swed.). PCT Int. Appl. WO 2001017716 A1
20010315, 16 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT,
AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, CZ, DE,
DE, DK, DK, DM, DZ, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU,
ID, IL, IN, IS, JP, KE, KG, KP, KR, KR, KZ, LC, LK, LR, LS, LT, LU,
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE,
SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA,
ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG,
CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML,
MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.
APPLICATION: WO 2000-SE1724 20000907. PRIORITY: SE 1999-3231
19990909.

AB The Fe-based powder blends contain: (a) com. Fe powders; (b) metal
powders for alloying; (c) **lubricant** coating mixt. applied

in molten form at 0.05-3%; and (d) 0.005-2% of colloidal metal or oxide flow promoter (esp. **SiO₂**) having the particle size <200 nm. The Fe-based powder is optionally prealloyed with a metal, or precoated with fine metal particles by diffusion bonding. The **lubricant** coating is preferably a mixt. of waxes, soaps, and/or thermoplastic polymers, esp. as a mixt. of Zn stearate and stearamide suitable for cold compaction. The Fe-powder blends are mixed by heating at typically 120-150° to melt the **lubricant** for dispersion, and the heated mixt. is cooled by 10-30° below the **lubricant** m.p. and mixed with the colloidal flow promoter, followed by the final cooling and cold compaction. Atomized Fe powder (av. size 63 μ m) was premixed with 2.0% of fine Cu powder (.apprx.200 mesh) and 0.50% of **graphite** powder (av. size .apprx.4 μ m), and the powder blend was mixed with heating to .apprx.150° for the waxy **lubricant** addn. at 0.80%, and cooled to 120° for adding colloidal **SiO₂** at 0.03% as the flow promoter. The resulting flowable mixt. showed a low dusting index, vs. high initial value without the colloidal **SiO₂**, or when adding the **SiO₂** after the final cooling.

IT 7631-86-9, **Silica**, uses
(colloidal, powder blends with; iron-powder blends with waxy **lubricant** and colloidal promoter for dust-free flow)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

IT 7782-42-5, **Graphite**, uses
(powder, alloying blends with; iron-powder blends with waxy **lubricant** and colloidal promoter for dust-free flow)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM B22F001-00
ICS C22C033-02

CC 55-4 (Ferrous Metals and Alloys)

ST iron powder alloying blend waxy **lubricant**; colloidal

- IT **silica** blend iron powder flow
- IT Powder metallurgy
 - (iron powder; iron-powder blends with waxy **lubricant** and colloidal promoter for dust-free flow)
- IT Polyamides, uses
- IT Polyesters, uses
- IT Polyimides, uses
- IT Soaps
- IT Waxes
 - (**lubricants** with; iron-powder blends with waxy **lubricant** and colloidal oxide promoter for dust-free flow)
- IT Colloids
 - (oxide, powder blends with; iron-powder blends with waxy **lubricant** and colloidal oxide promoter for dust-free flow)
- IT Alcohols, uses
 - (polyhydric, **lubricants** with; iron-powder blends with waxy **lubricant** and colloidal oxide promoter for dust-free flow)
- IT **Lubricants**
 - (waxy, powder blends with; iron-powder blends with waxy **lubricant** and colloidal oxide promoter for dust-free flow)
- IT 7631-86-9, **Silica**, uses
 - (colloidal, powder blends with; iron-powder blends with waxy **lubricant** and colloidal promoter for dust-free flow)
- IT 110-30-5, Ethylene bis-stearamide 557-05-1, Zinc stearate
 - (**lubricants** with; iron-powder blends with waxy **lubricant** and colloidal promoter for dust-free flow)
- IT 7439-89-6, Iron, uses
 - (powder, additives in; iron-powder blends with waxy **lubricant** and colloidal promoter for dust-free flow)
- IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-32-6, Titanium, uses 7440-33-7, Tungsten, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 7440-67-7, Zirconium, uses 7440-69-9, Bismuth, uses 7782-42-5, Graphite, uses 8049-19-2, Ferrophosphorus

(powder, alloying blends with; iron-powder blends with waxy lubricant and colloidal promoter for dust-free flow)

L35 ANSWER 14 OF 24 HCA COPYRIGHT 2006 ACS on STN

132:5184 Iron-based powder **blends** containing minor ultrafine oxides for the powder flowability in press compaction. Luk, Sydney (Hoganas Ab, Swed.). PCT Int. Appl. WO 9959753 A1 19991125 , 31 pp. DESIGNATED STATES: W: AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.

APPLICATION: WO 1998-SE925 19980515.

AB The Fe-based powder blends for pressing of green preforms before sintering contain 0.005-2% of ultrafine oxide having av. particle size <500 nm, optionally with conventional **lubricants**, **graphite** powder, binders, and/or plasticizers. The powder blend with >85% Fe typically contains a minor addn. of colloidal **SiO₂** (size <40 nm). The resulting powder blend is flowable for die filling and compaction at 125-370° C and 5-200 tons/in.², and the resulting preforms can be ejected for conventional sintering. The typical powder blend with com. Fe 99, **graphite** 0.4, mold **lubricant** 0.45, and cellulose-type binder 0.15% was modified by adding 0.03% of colloidal **SiO₂**, and showed good flow at 70-300° F, vs. no flowability of the original blend at 250 and 300° F.

IT 7631-86-9, **Silica**, uses

(colloidal; iron-powder blends contg. minor ultrafine oxide for powder flowability in compaction)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



IT 7782-42-5, **Graphite**, uses

(powder, sintering mixts. with; iron-powder blends contg. minor ultrafine oxide for powder flowability in compaction)

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IT 1317-61-9, Iron oxide (Fe₃O₄), uses
(ultrafine powder; iron-powder blends contg. minor ultrafine
oxide for powder flowability in compaction)

RN 1317-61-9 HCA
CN Iron oxide (Fe₃O₄) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM B22F001-00

CC 55-4 (Ferrous Metals and Alloys)

ST iron powder blend flowability colloidal oxide addn; **silica**
colloid addn iron powder flowability

IT 7631-86-9, Silica, uses
(colloidal; iron-powder blends contg. minor ultrafine oxide for
powder flowability in compaction)

IT 7440-02-0, Nickel, uses 7782-42-5, Graphite,
uses 12023-53-9, Iron phosphide (Fe₃P) 132861-13-3, Ancorsteel
85HP, uses
(powder, sintering mixts. with; iron-powder blends contg. minor
ultrafine oxide for powder flowability in compaction)

IT 1304-76-3, Bismuth oxide, uses 1309-48-4, Magnesia, uses
1313-99-1, Nickel oxide, uses 1314-08-5, Palladium oxide
1314-23-4, Zirconia, uses 1314-35-8, Tungsten oxide, uses
1314-36-9, Yttria, uses 1317-61-9, Iron
oxide (Fe₃O₄), uses 1332-29-2, Tin oxide 1335-25-7, Lead
oxide 1344-28-1, Alumina, uses 1344-70-3, Copper oxide
11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11129-60-5,
Manganese oxide 11129-89-8, Platinum oxide 12627-00-8, Niobium
oxide 13463-67-7, Titania, uses 20667-12-3, Silver oxide
39403-39-9, Gold oxide
(ultrafine powder; iron-powder blends contg. minor ultrafine
oxide for powder flowability in compaction)

L35 ANSWER 15 OF 24 HCA COPYRIGHT 2006 ACS on STN
131:232501 Manufacture of self-lubricating zirconia-
graphite ceramic composite. Liu, Huiwen; Xue,
Qunji; Liu, Weimin; Yang, Shengrong (Lanzhou Institute of Chemical
Physics, Chinese Academy of Sciences, Peop. Rep. China). Faming

Zhuanli Shenqing Gongkai Shuomingshu CN 1132731 A **19961009**
, 5 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 1995-121439
19951228.

AB The composite is prep'd. from **ZrO₂ nanoparticles** 90, **graphite** 1-4, **Bi₂O₃** (sintering aid) 5-8, and **Al₂O₃** and **SiO₂** (grain growth inhibitor) 0.62-2 wt.%. Preferably, the **ZrO₂** is 3 mol% **Y₂O₃**-stabilized tetragonal **ZrO₂** with a particle size of 10 nm; and the particle size of **graphite** is 30 μ m. The manuf. of the composite comprises: mixing, cold pressing in stainless steel mold at 400-500 MPa for 1-3 min, and hot pressing in **graphite** die at 1300-1350° and 10-20 MPa for 15-30 min. The obtained composite has high hardness, improved friction and wear resistance.

IT **7631-86-9, Silica, uses**
(grain growth inhibitor; for manuf. of self-lubricating zirconia-graphite ceramic composite)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

IT **7782-42-5, Graphite, processes**
(manuf. of self-lubricating zirconia-graphite ceramic composite)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C04B035-488
ICS C04B035-486

CC 57-2 (Ceramics)

ST zirconia **graphite** self lubricating ceramic composite; bismuth oxide sintering aid ceramic composite; alumina **silica** grain growth inhibitor ceramic composite

IT Sintering
(hot pressing; manuf. of self-lubricating zirconia-graphite ceramic composite by)

IT Ceramic composites
(manuf. of self-lubricating zirconia-graphite

ceramic composite)
IT Hardness (mechanical)
Wear
(manuf. of self-lubricating zirconia-graphite
ceramic composite for)
IT Antifriction materials
(self-lubricating; manuf. of self-lubricating
zirconia-graphite ceramic composite)
IT 1344-28-1, Aluminum oxide (Al₂O₃), uses 7631-86-9,
Silica, uses
(grain growth inhibitor; for manuf. of self-lubricating
zirconia-graphite ceramic composite)
IT 1314-23-4, Zirconium oxide (ZrO₂), processes 7782-42-5,
Graphite, processes
(manuf. of self-lubricating zirconia-graphite
ceramic composite)
IT 1304-76-3, Bismuth oxide (Bi₂O₃), uses
(sintering aid; for manuf. of self-lubricating
zirconia-graphite ceramic composite)
IT 1314-36-9, Yttrium oxide (Y₂O₃), uses
(zirconia stabilized with; manuf. of self-lubricating
zirconia-graphite ceramic composite)

L35 ANSWER 16 OF 24 HCA COPYRIGHT 2006 ACS on STN
131:232492 IR- and UV-absorbing dark-bronze soda-lime glass
compositions. Boulos, Edward Nashed; Jones, James Victor
(Ford Motor Company, USA; Ford Motor Company Limited). PCT Int.
Appl. WO 9948826 A1 19990930, 30 pp. DESIGNATED STATES:

W: CA, CN, JP, KR, MX; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB,
GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2.

APPLICATION: WO 1999-GB781 19990325. PRIORITY: US 1998-48757
19980326.

AB The glass contains SiO₂ 68-75, Na₂O 10-18, CaO 5-15, MgO
0-10 (CaO + MgO 6-15), Al₂O₃ 0-5, K₂O 0-5 (Na₂O + K₂O 10-20), and
colorants consisting essentially of total Fe oxide
(as Fe₂O₃) >0.5 [max. Fe₂O₃ 1.5; redox ratio
FeO/total Fe (as Fe₂O₃) <0.26], manganese compd.
(as MnO₂) 0.10 to 1.00, selenium 0.0005-0.004, Co oxide (as Co)
≤0.016 wt.%, and has, at thickness 4.0 mm, dominant
wavelength 570-585, purity of excitation 5-30, light transmittance
using Illuminant A (LTA) 20 to 65, UV transmittance at 300-400
nm <35, and IR transmittance at 760-2120 nm <46%.

At LTA 20-50 and >50, the excitation purity is 7-30 and 5-20, resp.
This glass is esp. suitable for architectural windows.

IT 1309-37-1, Iron oxide (Fe2O3),
uses 1345-25-1, Iron oxide (FeO), uses
(colorant; in IR- and UV-absorbing dark bronze soda-lime glass
compns. for architectural windows)

RN 1309-37-1 HCA

CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1345-25-1 HCA

CN Iron oxide (FeO) (8CI, 9CI) (CA INDEX NAME)

Fe=O

IT 7631-86-9, Silica, uses
(in IR- and UV-absorbing dark bronze soda-lime glass compns. for
architectural windows)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 7782-42-5, Graphite, uses
(reducing agent; in IR- and UV-absorbing dark bronze soda-lime
glass compns. for architectural windows)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C03C003-087

ICS C03C004-02; C03C001-10; C03C004-08

CC 57-1 (Ceramics)

ST IR UV absorbing dark bronze soda lime glass; colorant dark bronze
soda lime glass; iron oxide colorant dark bronze
glass; selenium colorant dark bronze glass; manganese dioxide
colorant dark bronze glass; cobalt oxide colorant dark bronze glass;
architectural window dark bronze glass

IT 1309-37-1, Iron oxide (Fe2O3),
uses 1313-13-9, Manganese dioxide, uses 1345-25-1,
Iron oxide (FeO), uses 7782-49-2,
Selenium, uses 11104-61-3, Cobalt oxide 13463-67-7, Titania,
uses
(colorant; in IR- and UV-absorbing dark bronze soda-lime glass
compns. for architectural windows).

IT 1305-78-8, Calcia, uses 1309-48-4, Magnesia, uses 1313-59-3,
Sodium oxide, uses 1344-28-1, Aluminum oxide (Al2O3), uses
7631-86-9, Silica, uses 12136-45-7, Potassium
oxide, uses
(in IR- and UV-absorbing dark bronze soda-lime glass compns. for
architectural windows)

IT 7782-42-5, Graphite, uses
(reducing agent; in IR- and UV-absorbing dark bronze soda-lime
glass compns. for architectural windows)

L35 ANSWER 17 OF 24 HCA COPYRIGHT 2006 ACS on STN
131:22306 Manufacture of silicon nitride-silicon carbide
composite powder with nano-composite
structure and composite sintered body. Miyake, Kazumi;
Hamazaki, Kagehisa; Toyoda, Hitoshi; Higuchi, Yoshikatsu (Honda
Giken Kogyo Kabushiki Kaisha, Japan). U.S. US 5912200 A
19990615, 13 pp., Cont.-in-part of U.S. 5,648,028.
(English). CODEN: USXXAM. APPLICATION: US 1997-857463 19970516.
PRIORITY: JP 1994-84162 19940330; JP 1994-319037 19941129; US
1995-413445 19950330; US 1996-625043 19960329; JP 1996-168092
19960628.

AB The composite powder comprises Si₃N₄, SiC and a sintering aid which
is either \geq 1 of Y₂O₃, Al₂O₃, SiO₂, MgO, Yb₂O₃,
HfO₂, La₂O₃, Fe₂O₃, Lu₂O₃ and ZrO₂ or a combination of
 \geq 1 of those oxides and AlN, and contains \geq 30%
 α -Si₃N₄ based on all Si₃N₄. The composite powder is produced
by heat-treating a powder mixt. in a N-contg. atm. at
 \leq 1450° to nitride and carbonize Si in the powder
mixt., which comprising Si powder 81.2-97.6, carbonaceous powder
2.4-18.8%, and sintering aid powder 5-20 wt.%. The obtained
composite powder has a sp. surface area of \geq 7 m²/g. The
composite sintered body is produced by hot isostatic pressing or hot
pressing the composite powder at 1,600-2,200° in a N-contg.
atm.

IT 1309-37-1, Iron oxide (Fe2O3),

reactions 7631-86-9, **Silica**, reactions
(sintering aid contg.; manuf. of silicon nitride-silicon carbide composite powder with **nano**-composite structure and composite sintered body)

RN 1309-37-1 HCA
CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7631-86-9 HCA
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

IT 7782-42-5, **Graphite**, processes
(starting material, powder; manuf. of silicon nitride-silicon carbide composite powder with **nano**-composite structure and composite sintered body)

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C04B035-565
ICS C04B035-584; B28B003-00
INCL 501092000
CC 57-2 (Ceramics)
Section cross-reference(s): 56
ST silicon nitride composite powder manuf; silicon carbide composite powder manuf; alumina sintering aid composite powder; **silica** sintering aid composite powder; **ferric oxide** sintering aid composite powder; yttrium oxide sintering aid composite powder; magnesium oxide sintering aid composite powder; ytterbium oxide sintering aid composite powder; hafnium oxide sintering aid composite powder; lanthanum oxide sintering aid composite powder; lutetium oxide sintering aid composite powder; zirconia sintering aid composite powder

IT Powders
Powders
(ceramic; manuf. of silicon nitride-silicon carbide composite powder with **nano**-composite structure and composite sintered body)

IT Ceramic composites
Nanocomposites
(manuf. of silicon nitride-silicon carbide composite powder with nano-composite structure and composite sintered body)

IT Ceramics
Ceramics
(powders; manuf. of silicon nitride-silicon carbide composite powder with nano-composite structure and composite sintered body)

IT Carbon black, processes
(starting material, powder; manuf. of silicon nitride-silicon carbide composite powder with nano-composite structure and composite sintered body)

IT 409-21-2, Silicon carbide (SiC), processes 12033-89-5, Silicon nitride (Si₃N₄), processes
(manuf. of silicon nitride-silicon carbide composite powder with nano-composite structure and composite sintered body)

IT **1309-37-1, Iron oxide (Fe₂O₃), reactions** 1309-48-4, Magnesium oxide (MgO), reactions 1312-81-8, Lanthanum oxide (La₂O₃) 1314-23-4, Zirconium oxide (ZrO₂), reactions 1314-36-9, Yttrium oxide (Y₂O₃), reactions 1314-37-0, Ytterbium oxide (Yb₂O₃) 1344-28-1, Aluminum oxide (Al₂O₃), reactions **7631-86-9, Silica, reactions**
12032-20-1, Lutetium oxide (Lu₂O₃) 12055-23-1, Hafnium oxide (HfO₂)
(sintering aid contg.; manuf. of silicon nitride-silicon carbide composite powder with nano-composite structure and composite sintered body)

IT 7440-21-3, Silicon, processes **7782-42-5, Graphite**, processes
(starting material, powder; manuf. of silicon nitride-silicon carbide composite powder with nano-composite structure and composite sintered body)

L35 ANSWER 18 OF 24 HCA COPYRIGHT 2006 ACS on STN

130:128782 A nitrate-free method for manufacturing UV radiation-absorbing blue soda-lime glass **compositions**.

Jones, James Victor; Boulos, Edward Nashed (Ford Motor Company, USA; Ford Motor Company Limited). PCT Int. Appl. WO 9902462 A1

19990121, 28 pp. DESIGNATED STATES: W: CA, CN, HU, JP, KR,

MX; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,

NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1998-GB1826

19980622. PRIORITY: US 1997-891689 19970711.

AB The method comprises adding, during melting of the glass, colorants consisting essentially of a Mn compd. along with a Co compd., **Fe oxide**, and, optionally, TiO₂ to a soda-lime-based glass compn., but adding no NaNO₃ to the molten batch, the materials are added in an amts. sufficient to form a blue glass compn. having at thickness 4.0 mm dominant wavelength 477-494; and purity of excitation 6-40%. The blue glass compns. comprises a base glass contg. SiO₂ 68-75, Na₂O 10-18, CaO 5-15, MgO 0-10 (CaO + MgO 6-15), Al₂O₃ 0-5, and K₂O 0-5 (Na₂O + K₂O 10-20), and colorants consisting essentially of: total **Fe oxide** as Fe₂O₃ 0.4-2.0, Mn oxide as MnO₂ 0.15-2.00; Co oxide as Co 0.005-0.025, and T oxide as TiO₂ 0-1.00 wt.%. The glass is useful for automotive or architectural applications. Preferably, the method comprises the use of a reducing agent, e.g., anthracite coal, during the melting stage. The blue soda-lime glass has improved UV radiation absorption while maintaining high visible light transmission.

IT 1309-37-1, **Ferric oxide**, uses
(colorant, nitrate-free compns. contg.; for UV-absorbing blue soda-lime glass manuf.)

RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7631-86-9, **Silica**, uses
(nitrate-free compns. contg.; for UV-absorbing blue soda-lime glass manuf.)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 7782-42-5, **Graphite**, uses
(reducing agent, nitrate-free compns. contg.; for UV-absorbing blue soda-lime glass manuf.)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C03C004-02
ICS C03C003-087; C03C004-08
CC 57-1 (Ceramics)
IT 1307-96-6, Cobalt oxide, uses 1308-06-1, Cobalt oxide (Co3O4)
1309-37-1, Ferric oxide, uses
1313-13-9, Manganese dioxide, uses 11129-60-5, Manganese oxide
13463-67-7, Titania, uses
(colorant, nitrate-free compns. contg.; for UV-absorbing blue
soda-lime glass manuf.)
IT 497-19-8, Carbonic acid disodium salt, uses 1305-78-8, Calcia,
uses 1309-48-4, Magnesia, uses 1313-59-3, Sodium oxide, uses
1332-37-2, Iron oxide, uses 1344-28-1,
Alumina, uses 7631-86-9, Silica, uses
12136-45-7, Potassium oxide, uses 16389-88-1, Dolomite, uses
219824-57-4, Carbocite
(nitrate-free compns. contg.; for UV-absorbing blue soda-lime
glass manuf.)
IT 7782-42-5, Graphite, uses
(reducing agent, nitrate-free compns. contg.; for UV-absorbing
blue soda-lime glass manuf.)

L35 ANSWER 19 OF 24 HCA COPYRIGHT 2006 ACS on STN
127:242065 Metal oxide **nanorods**, **composite** materials
containing such **nanorods**, and their production. Lieber,
Charles M.; Yang, Peidong (President and Fellows of Harvard College,
USA). PCT Int. Appl. WO 9731139 A1 19970828, 37 pp.
DESIGNATED STATES: W: AU, CA, JP; RW: AT, BE, CH, DE, DK, ES, FI,
FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2.
APPLICATION: WO 1997-US2600 19970221. PRIORITY: US 1996-606892
19960226; US 1997-790824 19970122.

AB The metal oxide **nanorods** have diams. of 1-200 nm
and aspect ratios of 5-2000. The prodn. of the metal oxide
nanorods includes the steps of generating a metal vapor from
a metal vapor source in a furnace, exposing the **nanorod**
growth substrate to the metal vapor within a growth zone in the
furnace for a sufficient time to grow metal oxide **nanorods**
on a surface of the **nanorod** growth substrate, removing the
nanorod growth substrate from the growth zone after the
sufficient time, and removing the metal oxide **nanorods**
from the furnace. The methods can be used to prep. large quantities
of metal oxide **nanorods**. The **nanorods** are
useful in superconductor matrixes.

IT 7631-86-9, **Silica**, processes
(prodn. of metal oxide **nanorods** for composites contg.)
RN 7631-86-9 HCA
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

IT 7782-42-5, **Graphite**, processes
(substrate; in prodn. of metal oxide **nanorods** for
composites)
RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C30B023-00
ICS C30B029-16; C30B029-60; B32B005-02; H01L039-02
CC 76-4 (Electric Phenomena)
Section cross-reference(s): 57
ST metal oxide **nanorod**; superconductor metal oxide
nanorod composite
IT Superconductors
(high-temp.; prodn. of metal oxide **nanorods** for
composites with)
IT Composites
(prodn. of metal oxide **nanorods** for)
IT Oxides (inorganic), processes
(prodn. of metal oxide **nanorods** for composite
materials)
IT Ceramics
(prodn. of metal oxide **nanorods** for composites contg.)
IT Glass, processes
Metals, processes
Polymers, processes
Rare earth oxides
(prodn. of metal oxide **nanorods** for composites contg.)
IT Superconductors
(prodn. of metal oxide **nanorods** for composites with)
IT 1303-86-2, Boron oxide, processes 1304-28-5, Barium oxide,
processes 1305-78-8, Calcium oxide, processes 1306-19-0, Cadmium

oxide, processes 1309-48-4, Magnesium oxide, processes 1310-53-8, Germanium oxide, processes 1312-43-2, Indium oxide 1312-81-8, Lanthanum oxide 1313-96-8, Niobium oxide 1313-99-1, Nickel oxide, processes 1314-11-0, Strontium oxide, processes 1314-13-2, Zinc oxide, processes 1314-23-4, Zirconium oxide, processes 1314-35-8, Tungsten oxide, processes 1314-36-9, Yttrium oxide, processes 1314-61-0, Tantalum oxide 1332-29-2, Tin oxide 1332-37-2, **Iron oxide**, processes 1335-25-7, Lead oxide 1344-28-1, Aluminum oxide, processes 1344-70-3, Copper oxide 7631-86-9, **Silica**, processes 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11118-57-3, Chromium oxide 11129-60-5, Manganese oxide 12024-21-4, Gallium oxide 12055-23-1, Hafnium oxide 12060-08-1, Scandium oxide 12624-27-0, Rhenium oxide 12651-21-7, Thallium oxide 13463-67-7, Titanium oxide, processes 52953-75-0, Technetium oxide 61970-39-6, Osmium oxide

(prodn. of metal oxide **nanorods** for composites contg.)

IT 115866-07-4, Barium calcium copper thallium oxide (Ba₂Ca₂Cu₃Tl₂O₁₀)
 115866-34-7D, Bismuth calcium copper strontium oxide (Bi₂CaCu₂Sr₂O₈), oxygen-excess
 (prodn. of metal oxide **nanorods** for composites with)
 IT 7782-42-5, **Graphite**, processes
 (substrate; in prodn. of metal oxide **nanorods** for composites)

L35 ANSWER 20 OF 24 HCA COPYRIGHT 2006 ACS on STN

126:318190 Colored articles having a light-transmitting solid polymeric matrix and particle scattering colorants, **compositions** therefor, and methods for their fabrication. Smith, Tammy Lynn; Baughman, Ray; Martin, Mary Frances; Choi, Wonsik; Moulton, Jeffrey (Alliedsignal Inc., USA). PCT Int. Appl. WO 9711991 A1
 19970403, 101 pp. DESIGNATED STATES: W: JP; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE.
 (English). CODEN: PIXXD2. APPLICATION: WO 1996-US15541 19960927.
 PRIORITY: US 1995-535687 19950928.

AB Colored composite articles comprise a solid matrix component contg. a nonliq. particle scattering colorant (a semiconductor, a metallic conductor, a metal oxide, or a salt) and a solid matrix component contg. an electronic transition colorant, dye, or pigment, with the first matrix being <50% of that of the second matrix at visible wavelengths; a polymer matrix contg. ≥1 particle

scattering colorant and ≥ 1 electronic transition colorant, dye or pigment having specified properties; or composite fibers contg. ferroelec, antiferroelec, or photoferroelec. particles. The coloration effects can be designed to be either highly stable or dependent upon the switching effects of temp., integrated thermal exposure, moisture absorption, or exposure to actinic radiation. Colored articles, e.g., carpets, prep'd. from the compns. do not fade and can be recycled. Thus, a 10% compn. of MT 500B (av. particle diam. 35 nm) in MBN (nylon 6) was prep'd., extruded, pelletized, redried, then dry-blended with more nylon 6 to give a final let-down concn. of 1%. A similarly prep'd. 1:99 carbon black-nylon compn. (0.5 parts) was chip-blended with 99.5 parts of the first compn., spun into fibers, drawn, and texturized, giving light-blue to gray-blue fibers with an angle-dependent hue in shade.

IT 7631-86-9, **Silica**, uses

(colloidal, particle scattering colorant; colored articles having a light-transmitting solid polymeric matrix and particle scattering colorants, compns. therefor, and methods for their fabrication)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 1317-61-9, **Iron oxide** (Fe₃O₄), uses

(colorant; colored articles having a light-transmitting solid polymeric matrix and particle scattering colorants, compns. therefor, and methods for their fabrication)

RN 1317-61-9 HCA

CN Iron oxide (Fe₃O₄) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7782-42-5, **Graphite**, uses

(electronic transition colorant; colored articles having a light-transmitting solid polymeric matrix and particle scattering colorants, compns. therefor, and methods for their fabrication)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C08K003-00
 ICS D01F001-04; C08J005-18; B32B027-20; D01F008-04; D01F008-12;
 D01F006-04; D01F006-60; D01D005-24; B41M005-00; G03F007-00

CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 40, 55, 56, 76

IT 7429-90-5, Aluminum, uses 7439-88-5, Iridium, uses 7439-92-1,
 Lead, uses 7440-02-0, Nickel, uses 7440-04-2, Osmium, uses
 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6,
 Rhodium, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses
 7440-50-8, Copper, uses 7440-66-6, Zinc, uses 7631-86-9,
 Silica, uses
 (colloidal, particle scattering colorant; colored articles having
 a light-transmitting solid polymeric matrix and particle
 scattering colorants, compns. therefor, and methods for their
 fabrication)

IT 1314-13-2, Zinc oxide, uses 1314-34-7, Vanadium oxide (V2O3)
 1317-61-9, Iron oxide (Fe3O4), uses
 1332-37-2, Iron oxide, uses 1344-54-3,
 Titanium oxide (Ti2O3) 12022-99-0, Iron silicide (FeSi2)
 12034-59-2, Niobium oxide (NbO2) 12036-21-4, Vanadium oxide (VO2)
 12065-98-4, Titanium oxide (Ti5O9) 12143-55-4, Titanium oxide
 (Ti4O7) 12209-58-4, Molybdenum vanadium oxide 16812-54-7, Nickel
 sulfide (NiS) 51801-22-0, Tungsten vanadium oxide 65453-41-0,
 Niobium vanadium oxide 152379-60-7, Tantalum vanadium oxide
 (colorant; colored articles having a light-transmitting solid
 polymeric matrix and particle scattering colorants, compns.
 therefor, and methods for their fabrication)

IT 7782-42-5, Graphite, uses
 (electronic transition colorant; colored articles having a
 light-transmitting solid polymeric matrix and particle scattering
 colorants, compns. therefor, and methods for their fabrication)

L35 ANSWER 21 OF 24 HCA COPYRIGHT 2006 ACS on STN

124:205166 Aqueous inorganic **anticorrosive** coatings. Jin,
 Qiang (Peop. Rep. China). Faming Zhuanli Shengqing Gongkai
 Shuomingshu CN 1109080 A 19950927, 5 pp. (Chinese).
 CODEN: CNXXEV. APPLICATION: CN 1994-110127 19940321.

AB Title coatings, with good acid, alkali, heat, and water resistance,
 comprise **anticorrosive** inorg. compds. (selected from talc,
 Fe yellow, **graphite**, Cr2O3, MgCO3, TiO2, SnO2, and
 FeO) 10-50, **antirust** inorg. compds. (selected from
 ZnCrO4, Na2CO3, ZnO, and NaNO2) 5-25, fire retardants (

Fe₂O₃, SiO₂, Al₂O₃, MgO, ZrO₂, and clay) 10-30,
diluents (e.g., acrylic resin emulsions) 20-50, and water 3-15%.

IT 1309-37-1, **Ferric oxide**, uses
1345-25-1, **Ferrous oxide**, uses
7631-86-9, **Silica**, uses 7782-42-5,
Graphite, uses
(acrylic diluent-contg. aq. inorg. oxide/salt coatings with
anticorrosion)

RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1345-25-1 HCA

CN Iron oxide (FeO) (8CI, 9CI) (CA INDEX NAME)

Fe=O

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C09D001-00

ICS C09D005-08

CC 42-10 (Coatings, Inks, and Related Products)

ST **anticorrosion** aq inorg oxide coating; acrylic diluent aq
inorg coating

IT Acrylic polymers, uses

Clays, uses

(acrylic diluent-contg. aq. inorg. oxide/salt coatings with
anticorrosion)

IT Coating materials

(**anticorrosive**, acrylic diluent-contg. aq. inorg.
oxide/salt compns.)

IT 497-19-8, Sodium carbonate, uses 546-93-0, Magnesium carbonate

1308-38-9, Chromium oxide (Cr₂O₃), uses 1309-37-1, **Ferric oxide**, uses 1309-48-4, Magnesium oxide, uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 1345-25-1, **Ferrous oxide**, uses 7631-86-9, **Silica**, uses 7632-00-0, Sodium nitrite 7782-42-5, **Graphite**, uses 9003-01-4, Polyacrylic acid 13463-67-7, Titania, uses 13530-65-9, Zinc chromate 14807-96-6, Talc, uses 18282-10-5, Stannic oxide 51274-00-1, Iron yellow (acrylic diluent-contg. aq. inorg. oxide/salt coatings with **anticorrosion**)

L35 ANSWER 22 OF 24 HCA COPYRIGHT 2006 ACS on STN
107:220021 **Composition** for generating nitrogen gas for inflating air bags in automobiles. Hamilton, Brian K. (TRW Automotive Products, Inc., USA). U.S. US 4696705 A 19870929, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1986-946376 19861224.

AB A N(g)-generating material is described, which can be used for inflating an airbag for restraining the occupant in an automobile. It comprises grains of an azide-based material, which generates the gas upon combustion. The grains are made of Na azide 61-68, NaNO₃ 0-5, bentonite 0-5, **Fe oxide** 23-28, fumed SiO₂ 1-2, and **graphite** fibers 2-6 wt.%. The **graphite** fibers have a diam. of 3-15 μ and an av. length of 0.040-0.125 in.

IT 7782-42-5
(carbon fibers, **graphite**, compns. contg. sodium azide and, for nitrogen generation for airbag inflation)

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IT 60676-86-0
(fumed, compn. contg. sodium azide and, for nitrogen generation for airbag inflation)

RN 60676-86-0 HCA
CN Silica, vitreous (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM C06B045-02

INCL 149021000
CC 50-1 (Propellants and Explosives)
Section cross-reference(s): 47
IT Carbon fibers, uses and miscellaneous
(graphite, compns. contg. sodium azide and, for
nitrogen generation for airbag inflation)
IT 7440-44-0 7782-42-5
(carbon fibers, graphite, compns. contg. sodium azide
and, for nitrogen generation for airbag inflation)
IT 1332-37-2, Iron oxide, uses and miscellaneous
7631-99-4, Sodium nitrate, uses and miscellaneous
(compn. contg. sodium azide and, for nitrogen generation for
airbag inflation)
IT 60676-86-0
(fumed, compn. contg. sodium azide and, for nitrogen generation
for airbag inflation)

L35 ANSWER 23 OF 24 HCA COPYRIGHT 2006 ACS on STN
69:61243 **Composition** and fabrication of glass molds. Arribas
Gila, Jesus (Fabr. Esperanza S.A., San Ildefonso, Spain). Boletin
de la Sociedad Espanola de Ceramica, 7(1), 35-54 (Spanish)
1968. CODEN: BSOCAB. ISSN: 0037-8550.
AB Glass to be molded has generally the compn. **SiO₂** 71-2,
Al₂O₃ 1-3, **Fe₂O₃** 0.01-0.05, CaO 7-8, MgO 3-4, Na₂O 14-15,
K₂O 0.3-1, B₂O₃ 0.2-0.8, SO₃ 0.3-0.5%. **SiO₂** and B₂O₃ are
the network formers. Al₂O₃ facilitates pressing of the glass and
increases resistance to H₂O, also broadens the temp. range of
workability as does also B₂O₃ which also gives the glass a luster
and resistance to thermal shock. Lime has the opposite effect of
Al₂O₃ and is a network stabilizer; Na₂O and K₂O act as fluxes.
Fe₂O₃ is an impurity mainly introduced by the sand and
should approach the industrially possible min. of 0.025% to obtain a
colorless transparent glass. MgO inhibits devitrification and
increases resistance to thermal shock. The raw materials are sand:
SiO₂ 98.5-99.5, Al₂O₃, 0.1-0.4, **Fe₂O₃** 0.012-0.025,
firing loss 0.22%; limestone: CaO 53-5, MgO 0.1-0.3, Al₂O₃
0.15-0.40, **Fe₂O₃** 0.020-0.040%; firing loss (CO₂) 40-5%;
dolomite: CaO 30-5, MgO 20-2, **Fe₂O₃** 0.020-0.040, Al₂O₃
0.04-0.08, firing loss (CO₂) 45-8%; Na₂CO₃: Na₂O 57-9, NaCl
0.03-0.05, **Fe₂O₃** 0.001-0.003%; kernite: B₂O₃ 46-8, Na₂O
20-2, CaO 0.08-0.1, **Fe₂O₃** 0.085-0.098, Al₂O₃ 0.20-0.40,
SiO₂ 1-2%. Na₂CO₃ can be replaced by Na₂SO₄. The latter is

reduced in the glass batch by C at 740° and higher, **SiO₂** catalyzes the reaction. **Fe₂O₃** produces yellow or greenish tint, **FeO** produces a blue color. Extra-white glass cannot be obtained with more than 0.08% **Fe oxides** present. An oxidizing amt. and addn. of sulfates and nitrates, also **Al₂O₃** and **Sb₂O₃** can be used to obtain white colorless glasses at initially low **Fe oxide** content; **CeO₂** is also used as a decoloring agent, addn. of **CoO** neutralizing the residual color, **Nd₂O₃** and **NiO** also being used in small amounts for color neutralization as well as mixts. of **Mn₂O₃** and **Se**, the latter stabilized with **ZnO** to avoid volatilization. On remelting, the coloration can change the tint of glass. Refining is necessary to avoid gas bubbles and can be done with melting in contact with **graphite** electrodes at 60 v., 2000 amp. and refining agents such as **Na₂SO₄**, **NaNO₃**, and **BaSO₄**, and presence of moisture 1-4%. Homogeneity of the glass is important by proper mixing, fast melting, avoidance of refractories attack. Open-hearth type furnace are practical for this type of glass production as well the Unit-Melter type. The latter is esp. useful for <50 tons/day.

CC 57 (Ceramics)

ST glass molds; white glass **Fe oxides**; iron oxide glasses; arsenic oxide glasses; antimony oxide glasses; cerium oxide glasses; neodymium oxide glasses

L35 ANSWER 24 OF 24 HCA COPYRIGHT 2006 ACS on STN

36:27413 Original Reference No. 36:4218i, 4219a-i, 4220a-b Report of the Nonmetals Division, fiscal year 1941. Ralston, Oliver C.; Stern, A. George U. S. Bur. Mines, Rept. Investigations, 3599, 33 pp. (Unavailable) 1941.

AB cf. C. A. 35, 3355.8. Substitution of suitable domestic clays for imported varieties is under intensive investigation. N. Carolina kaolins correspond most closely to English kaolins in phys. and chem. properties but they are finer-grained, more plastic and stronger. In high-ball-clay bodies, kaolin substitution caused less change than ball-clay substitution. Plastic Fla. clays without ball clay produced white-firing bodies of considerable plasticity and strength. A white-firing montmorillonite from Texas (1-2%) improved working properties of weakly plastic chinaware bodies without darkening color. A new volumeter is described. Best results in avoiding plate warpage were obtained by supporting plates in a powd. packing during drying and machining the dry plates to make 3 planes parallel-the top of the rim, the bottom of the circular foot upon

which the plate rests, and the plane upon which the foot of the superimposed plate rests. An app. is described for identification of clay minerals too small for accurate microscopic identification. The exothermic and endothermic reactions produce deviations in a normal smooth heating curve; the position of these changes and their intensity indicate the identity and quantity of each mineral constituent. A quadruple-tunnel kiln has 7 advantages over a single-tunnel kiln of larger cross section, including faster firing cycles and higher efficiency. Sol. sulfate of slip and cake increases on aging. Preliminary results on electrophoretic dewatering of a Tenn. ball clay are given. The chem. compn. and refractoriness of fabricated forsterite are related in much the same way as shown by theor. temp.-concn. studies of the $MgO-SiO_2$ system. Tests of electrocast forsterite bricks are promising; excess MgO is desirable to react with excess SiO_2 impurity. Intercrust. cracking of boiler steel results from concn. of boiler water in a seam in contact with metal under stress and an embrittling boiler water. Treatment of boiler water with waste sulfite liquor, quebracho, Na phosphate and $NaNO_3$ eliminates its embrittlement characteristics. Washington coals yield coke suitable for blast-furnace use. S is low (less than 1%), P is high for some uses, and ash is high. Results of firing tests of 4 Wash. coals on domestic stokers are presented. Rate of drainage of wet coals is influenced more by relative surface than by any other factor; size distribution also is important. Fine coal can be recovered from washery slurry by flotation. The high-C fractions of Ala. coal refuse can be activated by the steam or $ZnCl_2$ method; the materials with the lowest ash content produce the most active product. Na salts reduce capacity of carbonaceous cation exchangers, but they can be regenerated with dil. acid without permanent harmful effect. Magnet Cove (Ark.) barite after fine grinding (-325 mesh) was floated without desliming using Na silicate, a fatty acid and pine oil in a 98% $BaSO_4$ product at 90% recovery. A gray color was destroyed by calcination with a small amt. of $NaCl$ or $BaCl_2$. Discrete grains of impurities can be removed from glass sand by std. methods of concn. Films can be removed from sand grains in an attrition scrubber. **Fe oxide** in many sands has been reduced from 0.1-0.2% to 0.02-0.04% and in some from 0.03-0.06% to 0.007-0.013%. Mica can be sepd. from gang by agglomerate tabling and froth flotation using acid salts of long-chain amines and H_2SO_4 either alone or with Al salts. An agricultural limestone (85% $CaCO_3$) can be produced from impure

deposits by flotation using soda ash, Na silicate and oleic acid. The principles involved in electrostatic sepn. of minerals were investigated. Most efficient sepns. are obtained by utilization of properties that are most divergent for the constituents sepds., by cleansing the mineral surfaces, by altering the surfaces with reagents, and by methods which av. the properties of nonhomogeneous mineral surfaces. Good concns. and recoveries are obtained in sepn. of brucite from calcite and phosphate pebble from quartz utilizing the contact potential of the minerals; sepns. using elec. cond. are inferior. Separators that av. the surface properties of the particles instead of utilizing only 1 property usually are more selective; for example, a table separator vibrating 120 cycles a sec. yields better sepns. than one of the roll type. In this way, garnet was sep'd. from chromite and ilmenite and cassiterite from zircon. The table separator will grade mica into various degrees of delamination. Satisfactory flake **graphite** can be recovered from Ala. **graphite** schists. A math. distribution function for calcg. surface area, degree of uniformity, etc., from size data has been developed. The compds., solubilities, and equil. conditions in the system CaO-SiO₂-H₂O were studied. At 30°, 3 compds. form: CaO.SiO₂.nH₂O, 3CaO.4SiO₂.nH₂O and CaO.2SiO₂.nH₂O. Each is colloidal and absorbs much Ca(OH)₂ from soln.; the first is stable in satd. lime-H₂O. A study of the fluid characteristics of bentonite suspensions is summarized briefly. It is suggested that the concept of yield value be distinguished from fluid characteristics and be represented by measurements of stress-strain rather than stress-rate of shear.

IT 7782-42-5, **Graphite**
(flake, from Ala. schists)

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IT 7631-86-9, **Silica**
(system, MgO-CaO-H₂O-)
RN 7631-86-9 HCA
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

CC 13 (Chemical Industry and Miscellaneous Industrial Products)
IT **Lubricants**
 (greases, stds. or specifications for)
IT Lime
 (system, $\text{SiO}_2\text{-H}_2\text{O}$ -)
IT **7782-42-5, Graphite**
 (flake, from Ala. schists)
IT 10101-39-0, Calcium silicate
 (of lime- $\text{SiO}_2\text{-H}_2\text{O}$ system)
IT 1332-37-2, Iron oxide
 (removal from glass sand)
IT **7631-86-9, Silica**
 (system, $\text{MgO-CaO-H}_2\text{O}$ -)
IT 1309-48-4, Magnesia
 (system, SiO_2 -)

=> D L36 1-15 CBIB ABS HITSTR HITIND

L36 ANSWER 1 OF 15 HCA COPYRIGHT 2006 ACS on STN
142:200281 Method for preparing microcapsule filler. Liao, Jianhui;
Zhou, Zixia; Wang, Xiaojia; Yuan, Xundao; Lu, Shugang (Changchun
Institute of Applied Chemistry, Chinese Academy of Sciences, Peop.
Rep. China). Faming Zhuanli Shengqing Gongkai Shuomingshu CN 1405237
A 20030326, 17 pp. (Chinese). CODEN: CNXXEV.
APPLICATION: CN 2002-146055 20021028.

AB The microcapsule filler is prep'd. from monomer 0.05-4 part, filler 1
part, sensitizing agent 0-2, **antioxidant** 0-3, and diluent
0-200% of monomer by 60Co-gamma ray irradn. (0.1-20 Mrad). The
filler (its size of 100 nm-2 mm) is CaCO_3 , C black,
 SiO_2 , talc, mica, **graphite**, wood chip, *Juglans*
regia powder, wollastonite, Mg(OH)_2 , Al(OH)_3 , TiO_2 , Sb_2O_3 ,
decabromodiphenyl ether, Zn borate, clay, diatomite, and/or P. The
monomer is hexene, octene, 4-methyl-1-pentene, isoprene, methacrylic
acid, Me methacrylate, Et methacrylate, styrene, butadiene, vinyl
acetate, butene, and/or undecene. The sensitizing agent is AgNO_3 ,
 CuCl_2 , FeCl_3 , ZnCl_2 , or ZnO . The **antioxidant** is
antioxidant-1,010, **antioxidant-1,076**,
antioxidant AC, **antioxidant 330**,
octyldiphenylamine, 4,4'- di(alpha, alpha-
dimethylbenzyldiphenylamine), N-isopropyl-N'-phenyl-

1,4-benzenediamine, N,N'-di(1,4-dimethylpentyl)-1,4-benzenediamine, or N-phenyl-N'-(p-toluenesulfonyl)-1,4-benzenediamine. The diluter is polyethylene wax, liq. paraffin, polypropylene wax, silicone oil, epoxidized soybean oil, chlorinated paraffin wax, rapeseed oil, or castor oil.

IT 7631-86-9, **Silica**, uses 7782-42-5,
Graphite, uses
(for prep. microcapsule filler)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C09C003-10
ICS C08K009-04
CC 42-13 (Coatings, Inks, and Related Products)
IT 100-93-6, N-Phenyl-N'-(p-toluenesulfonyl)-p-phenylenediamine
101-72-4, N-Phenyl-N'-isopropyl-p-phenylenediamine 3081-14-9,
N,N'-Di(1,4-dimethylpentyl)-p-phenylenediamine 10081-67-1,
4,4'-Bis(α , α '-dimethylbenzylidiphenylamine)
(antioxidant; for prep. microcapsule filler)
IT 78-79-5, Isoprene, uses 79-41-4, Methacrylic acid, uses 80-62-6,
Methyl methacrylate 97-63-2, Ethyl methacrylate 100-42-5,
Styrene, uses 106-99-0, Butadiene, uses 108-05-4, Vinyl acetate,
uses 471-34-1, Calcium carbonate, uses 592-41-6, 1-Hexene, uses
691-37-2, 4-Methyl-1-pentene 1163-19-5, Decabromodiphenyl ether
1309-42-8, Magnesium hydroxide 1309-64-4, Antimony oxide, uses
1318-93-0, Montmorillonite, uses 1332-07-6, Zinc borate
1709-70-2, **Antioxidant**, 330 7631-86-9,
Silica, uses 7782-42-5, **Graphite**, uses
13463-67-7, Titania, uses 13983-17-0, Wollastonite 14807-96-6,
Talc, uses 21645-51-2, Aluminum hydroxide, uses 25167-67-3,
Butene 25377-83-7, Octene 28761-27-5, Undecene
(for prep. microcapsule filler)

L36 ANSWER 2 OF 15 HCA COPYRIGHT 2006 ACS on STN

140:256049 Method for **lubrication** of machinery components.

Nakajima, Satoshi; Isaki, Kenta; Tanaka, Shinji; Takada, Shigenobu; Yokoyama, Yasuo; Nakayama, Tomio; Takemura, Kunio; Kimura, Yasuhiro (JFE Steel Corp., Japan; Nippon Koyu Ltd.). Jpn. Kokai Tokkyo Koho JP 2004076003 A2 20040311, 9 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 2003-279033 20030724. PRIORITY: JP 2002-221631 20020730.

AB The contacting surfaces of sealed machinery components such as roller bearings are **lubricated** by coating with a film of sintered ultrafine **silica** layer (av. grain diam. ≤ 40 nm), then a polymer-contg. **lubricant** or **grease**. Preferably the **lubricant** or **grease** comprises a base oil having kinematic viscosity ≤ 200 mm²/s at 40°. The service life of machinery components during high-temp. operation can be significantly extended.

IT 7631-86-9, **Silica**, uses
(sintered ultrafine; method for **lubrication** of machinery components)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

IT 7782-42-5, **Graphite**, uses
(solid **lubricant**; method for **lubrication** of machinery components)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C10M103-00
ICS C10M101-02; C10M125-26; C10M143-02; C10M143-04; C10M143-06; C10M143-08; C10M143-10; C10M143-18; C10M169-02; C10M169-04; F16C033-66; C10N020-02; C10N020-06; C10N030-06; C10N040-02; C10N040-04; C10N050-08; C10N050-10

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

ST **lubrication** machinery component ultrafine **silica**

IT coating

IT Gears

Lubricating greases

 Machinery parts

 (method for **lubrication** of machinery components)

IT Bearings

 (roller; method for **lubrication** of machinery components)

IT **Lubricants**

 (solid; method for **lubrication** of machinery components)

IT 624-40-8, Diurea

 (**grease** thickener; method for **lubrication** of machinery components)

IT 9003-28-5, Polybutene

 (**lubricant**; method for **lubrication** of machinery components)

IT 7631-86-9, **Silica**, uses

 (sintered ultrafine; method for **lubrication** of machinery components)

IT 1317-33-5, Molybdenum disulfide, uses 7782-42-5,
Graphite, uses

 (solid **lubricant**; method for **lubrication** of machinery components)

L36 ANSWER 3 OF 15 HCA COPYRIGHT 2006 ACS on STN

139:104960 The influence of methyl group content on tribological properties of organo-**silica** thin films. Celichowski, G.; Piwonski, I.; Cichomski, M.; Koralewski, K.; Plaza, S.; Olejniczak, W.; Grobelny, J. (Department of Chemical Technology and Environmental Protection, University of Lodz, Lodz, 90-236, Pol.). Tribology Letters, 14(3), 181-185 (English) 2003. CODEN: TRLEFS. ISSN: 1023-8883. Publisher: Kluwer Academic/Plenum Publishers.

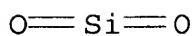
AB Solid thin films of **lubricants** are often used as protection coatings of working surfaces in frictional contacts. Usually, these films have to contain stable and tribol. active additives like, for example, molybdenum disulfide or **graphite**. Chem. modified **silica** was investigated as a potential matrix of **nanocomposite lubrication** films. The sol-gel technique was used with tetraethoxysilane (TEOS) and triethoxymethylsilane (TEMS) as precursors of organo-**silica** thin films. Dip coating was applied as the method of

film formation. Introducing a Me group into **silica** by adding TEMS during sol-gel synthesis of **silica** films strongly increases their adhesion to the coated materials, which gives possibilities for using them on steel surfaces. The chem. properties of films synthesized by the sol-gel technique were examd. by FTIR spectroscopy with the use of the transmission method. The surface topog. was imaged and frictional features of organo-**silica** films were examd. by At. Force Microscopy (AFM).

IT 7631-86-9P, **Silica**, preparation
(organo-modified, **lubrication** films,
nanocomposite; effect of Me group content on tribol.
properties of organo-modified **silica** thin
lubrication films)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



CC 57-9 (Ceramics)
Section cross-reference(s): 38

ST **silica** organo modified **lubricating** film methyl
friction adhesion

IT Coating process
(dip; effect of Me group content on tribol. properties of
organo-modified **silica** thin **lubrication**
films)

IT Adhesion, physical
Elasticity
Friction
Sol-gel processing
Surface structure
(effect of Me group content on tribol. properties of
organo-modified **silica** thin **lubrication**
films)

IT Films
(**lubricating**, organo-modified **silica**
nanocomposite; effect of Me group content on tribol.
properties of organo-modified **silica** thin
lubrication films)

IT **Nanocomposites**
(organo-modified **silica** **lubrication** films;

effect of Me group content on tribol. properties of
organo-modified **silica** thin **lubrication**
films)

IT 12597-69-2, Steel, uses
(effect of Me group content on tribol. properties of
organo-modified **silica** thin **lubrication**
films)

IT 7631-86-9P, **Silica**, preparation
(organo-modified, **lubrication** films,
nanocomposite; effect of Me group content on tribol.
properties of organo-modified **silica** thin
lubrication films)

IT 78-10-4, Tetraethoxysilane 2031-67-6, Triethoxymethylsilane
(precursor; effect of Me group content on tribol. properties of
organo-modified **silica** thin **lubrication**
films)

L36 ANSWER 4 OF 15 HCA COPYRIGHT 2006 ACS on STN

138:339244 Preparation of polymer micropowder with grinding block
mechanical reactor. Wang, Qi; Chen, Zhe; Liu, Changsheng; Xia,
Hesheng; Lu, Canhui; Xu, Xi (Sichuan University, Peop. Rep. China).
Faming Zhanli Shengqing Gongkai Shuomingshu CN 1341677 A
20020327, 4 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN
2000-113155 20000904.

AB The method comprises mixing one or more types of polymer particle or
powder at 0.5-5 mm with a grinding aid (such as **SiO₂**),
charging the mixt. to a grinding block mechanochem. reactor, and
repeating the grinding for 5-55 times to obtain the ultrafine
polymer micropowder at 30 nm-50 μ m, wherein the
grinding conditions are as follows: ambient temp. 0-40°,
circulating cooling water temp. 1-40°, and rotating speed of
grinding block 15-100 rpm. The ultrafine polymer micropowder can be
used in coating, adhesive, ink, solid **lubricant**,
cosmetics, medical material, etc.

IT 7631-86-9, **Silica**, uses 7782-42-5,
Graphite, uses 14808-60-7, **Quartz**, uses
(grinding aid; prepn. of polymer micropowder with grinding block
mechanical reactor)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

RN 14808-60-7 HCA
CN Quartz (SiO₂) (9CI) (CA INDEX NAME)

O—Si—O

IC ICM C08J003-12
CC 38-2 (Plastics Fabrication and Uses)
IT 57-09-0, CTMAB 471-34-1, Calcium carbonate, uses 1318-93-0,
Montmorillonite, uses 1344-28-1, Alumina, uses 7631-86-9
, Silica, uses 7727-43-7, Barium sulfate
7782-42-5, Graphite, uses 13463-67-7, Titania,
uses 13983-17-0, Wollastonite 14808-60-7, Quartz, uses
(grinding aid; prepn. of polymer micropowder with grinding block
mechanochem. reactor)

L36 ANSWER 5 OF 15 HCA COPYRIGHT 2006 ACS on STN

137:356602 Production of a functional coating for protection against
wear, corrosion, and heat. Hruschka, Martin; Hasenkox, Ulrich;
Klamt, Guido (Robert Bosch GmbH, Germany). Eur. Pat. Appl. EP
1258542 A2 20021120, 6 pp. DESIGNATED STATES: R: AT, BE,
CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT,
LV, FI, RO, MK, CY, AL, TR. (German). CODEN: EPXXDW. APPLICATION:
EP 2002-6990 20020327. PRIORITY: DE 2001-10124434 20010518.

AB A procedure is disclosed for prepn. of a wear-, corrosion-, and
heat-resistant functional coating on metal or ceramic substrates.
Functional materials (e.g., metals, polymers, graphite,
metal nitrides, oxides, carbides, or carbonitrides, dry
lubricants, ceramics) having a particle size of 10
nm-5 μ m or in a fiber form are dispersed in a matrix
soln. contg. water or a water-org. solvent mixt. and a phosphate.
The mixt. is deposited on the substrate and converted to the

functional coating contg. an inorg. phosphate matrix with the integrated functional material by air drying and heat treatment for 15 min-10 h at 150-800° (preferably 1-5 h at 200-400°) in a furnace and/or by using laser, UV, or IR radiation. Typically, the matrix/functional material ratio in the dispersion is 1:(2-12) (preferably 1:(6-9)). The procedure is esp. suitable for coating of automobile and machinery parts.

IT 7631-86-9, **Silica**, uses 7782-42-5,
Graphite, uses
(in functional coating on metals or ceramics for protection
against wear, corrosion, and heat)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C23C022-20
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 38, 57

IT **Lubricants**
(dry; in functional coating on metals or ceramics for protection
against wear, corrosion, and heat)
IT 555-31-7, Aluminum triisopropylate 1314-23-4, Zirconia, uses
1317-33-5, Molybdenum sulfide (MoS₂), uses 1344-28-1, Alumina,
uses 2269-22-9, Aluminum tri-sec-butylate 7440-21-3, Silicon,
uses 7631-86-9, **Silica**, uses 7782-42-5
, **Graphite**, uses 7784-30-7, Aluminum phosphate
9002-84-0, Polytetrafluoroethylene 9002-88-4, Polyethylene
10043-11-5, Boron nitride, uses 10043-83-1, Magnesium phosphate
10103-46-5, Calcium phosphate 10402-24-1, Iron phosphate
11118-57-3, Chromium oxide 12033-89-5, Silicon nitride, uses
12136-78-6, Molybdenum silicide (MoSi₂) 13463-67-7, Titania, uses
13765-94-1 13765-95-2, Zirconium phosphate 14455-29-9, Aluminum
carbonate 14475-63-9, Zirconium hydroxide (Zr(OH)₄) 21645-51-2,
Aluminum hydroxide, uses 24623-77-6, Aluminum oxide hydroxide

25583-20-4, Titanium nitride (TiN) 36577-48-7, Zirconium carbonate (in functional coating on metals or ceramics for protection against wear, corrosion, and heat)

L36 ANSWER 6 OF 15 HCA COPYRIGHT 2006 ACS on STN

137:297878 Multilayer-coated steel sheet with good resistance weldability for highly corrosion-resistant fuel tank. Suzuki, Yukiko; Kamakura, Kazuhiko; Ogata, Hiroyuki; Unno, Shigeru (Kawasaki Steel Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2002292791 A2 20021009, 23 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-98733 20010330.

AB Title **anticorrosive** panel is prep'd. by (A) Zn-based plating and then chromating both side of a steel sheet contg. C: 0.0007-0.0050, Si: \leq 0.5, Mn: \leq 2.0, P: \leq 0.10, S: \leq 0.015, Al: 0.01-0.20, N: \leq 0.01, Ti: 0.005-0.08, and B: 0.001-0.01 wt%; (B) coating one side with a composite layer contg. Al and Ni powders and amine-modified epoxy resins (e.g., diethanolamine-Epikote 1007 copolymer); and (C) coating the other side with a composite layer contg. emulsive acrylic resins (e.g., prep'd. from styrene and Me methacrylate in the presence of emulsifiers), **silica**, **lubricants** (e.g., polyolefin wax), elec. conductive particles (e.g., SN100D).

IT 7631-86-9, **Silica**, uses 7782-42-5, Hitasol GA 66M, uses

(multilayer-coated steel sheet with good resistance weldability for highly corrosion-resistant fuel tank)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si=O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM B32B015-08

ICS B05D005-00; B05D007-14; B05D007-24; B32B001-02; B60K015-03; B62J035-00; C22C038-00; C22C038-14; C23C028-00

CC 55-6 (Ferrous Metals and Alloys)

Section cross-reference(s) : 42

IT Coating materials

(**anticorrosive**; multilayer-coated steel sheet with good resistance weldability for highly corrosion-resistant fuel tank)

IT Chromating

Fuel tanks

Galvanizing

Lubricants

(multilayer-coated steel sheet with good resistance weldability for highly corrosion-resistant fuel tank)

IT 1327-33-9, Celnax CX-Z 300H 1332-29-2, Ceramace S 8

7631-86-9, **Silica**, uses 7782-42-5,

Hitasol GA 66M, uses 12673-86-8, Antimony tin oxide 18282-10-5, Nano Tek Tin Oxide 352532-33-3, SN 100D

(multilayer-coated steel sheet with good resistance weldability for highly corrosion-resistant fuel tank)

L36 ANSWER 7 OF 15 HCA COPYRIGHT 2006 ACS on STN

134:117227 Beverage container and beverage conveyor **lubricated** with a coating that is thermally or radiation cured and means of **lubricating** a bottle. Li, Minyu; Hei, Robert D. P.; Lokkesmoe, Keith D.; Olson, Keith Edward (Ecolab Inc., USA). PCT Int. Appl. WO 2001004220 A1 20010118, 23 pp. DESIGNATED

STATES: W: AE, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US18017 20000629. PRIORITY: US 1999-PV142908 19990709; US 2000-604469 20000627.

AB The passage of a container along a conveyor is **lubricated** by applying to the container or conveyor a **lubricating** coating that is thermally cured at <200° or radiation-cured. The mixt. can be applied in relatively low amts. and with relatively low or no H2O content, to provide thin, substantially nondripping, renewable **lubricating** films. In contrast to dil. aq. **lubricants**, the **lubricants** of the invention provide dry **lubrication** of the conveyors and containers, a cleaner conveyor line and reduced **lubricant** usage, thereby

reducing waste, cleanup and disposal problems. A **lubricant** coating contg. CN 981-hexanediol diacrylate curable blend, Ultraglide UV 701 (PTFE dispersion), photoinitiator, and iso-PrOH was applied onto PET and dried/cured to give a coated surface having coeff. of friction 0.71; vs. 0.63 for a com. **lubricant**.

IT 7631-86-9, Silica, uses 7782-42-5,

Graphite, uses

(**lubricant**; beverage container and beverage conveyor **lubricated** with a coating that is thermally or radiation cured)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C09D005-00

ICS C09D007-12; B65D023-08; B65G015-32

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 17

ST PTFE dispersion polyacrylate **lubricant** coating

IT Fluoropolymers, uses

(**Nanoflon** AQ 60; beverage container and beverage conveyor **lubricated** with a coating that is thermally or radiation cured)

IT Bottles

Conveyors

Lubricants

(beverage container and beverage conveyor **lubricated** with a coating that is thermally or radiation cured)

IT Carnauba wax

(beverage container and beverage conveyor **lubricated** with a coating that is thermally or radiation cured)

IT Polyesters, uses

(container; beverage container and beverage conveyor **lubricated** with a coating that is thermally or radiation

cured)

IT Fatty acids, uses
Fluoropolymers, uses
Fluoropolymers, uses
Polysiloxanes, uses
Waxes
(**lubricant**; beverage container and beverage conveyor
lubricated with a coating that is thermally or radiation
cured)

IT Polyoxyalkylenes, uses
(perfluoro, **lubricant**; beverage container and beverage
conveyor **lubricated** with a coating that is thermally or
radiation cured)

IT Fluoropolymers, uses
(polyoxyalkylene-, **lubricant**; beverage container and
beverage conveyor **lubricated** with a coating that is
thermally or radiation cured)

IT 9002-84-0, PTFE
(**Nanoflon** AQ 60; beverage container and beverage
conveyor **lubricated** with a coating that is thermally or
radiation cured)

IT 110158-74-2, Polyfluo 190 321132-91-6, Viaktin VTE 6165
321133-80-6, Microspersion 190-150 321133-98-6, Viaktin VTE 6161
321134-03-6
(beverage container and beverage conveyor **lubricated**
with a coating that is thermally or radiation cured)

IT 25038-59-9, Poly(ethylene terephthalate), uses
(container; beverage container and beverage conveyor
lubricated with a coating that is thermally or radiation
cured)

IT 1317-33-5, Molybdenum disulfide, uses 7631-86-9,
Silica, uses 7782-42-5, **Graphite**, uses
10043-11-5, Boron nitride, uses 24937-79-9, Poly(vinylidene
fluoride) 25101-45-5, Ethylene-chlorotrifluoroethylene copolymer
(**lubricant**; beverage container and beverage conveyor
lubricated with a coating that is thermally or radiation
cured)

L36 ANSWER 8 OF 15 HCA COPYRIGHT 2006 ACS on STN

133:368551 Field-emitting electron source. Yamakishi, Toshio; Nanba, Masakazu; Okazaki, Saburo; Hirano, Yoshiyuki; Okamura, Noritomo; Katsuhara, Yukinori; Inoue, Shigeru (Japan Broadcasting Corp.,

Japan; Hitachi Electronics Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2000323011 A2 20001124, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-129122 19990510.

AB The electron source, from which electrons are emitted by applying elec. voltage on a cathode and gate electrodes facing each other and the space sandwiched between the electrodes involves a porous elec. insulator. The elec. insulator has fine pores extended in the thickness direction as a result of anodization and pores involve emitters. Alternatively, the pores in the elec. insulator are formed by etching through a mask made of an anodized porous film having fine pores in the direction perpendicular to the thickness direction. The electron source with having submicron- to nano-order emitters can be obtained without photolithog., i.e., at low cost.

IT 7631-86-9, Silica, uses

(insulator; field-emitting electron source having elec. insulator involving emitter in micropores formed by anodization or etching)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

IT 7782-42-5, Graphite, processes

(powd., lubricant; in manuf. of field-emitting electron source having elec. insulator involving emitter in micropores formed by anodization or etching)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM H01J001-304

CC 76-12 (Electric Phenomena)

Section cross-reference(s): 56

IT 1309-48-4, Magnesium oxide, uses 1313-96-8, Niobium oxide 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-61-0, Tantalum oxide 1344-28-1, Alumina, uses

7631-86-9, Silica, uses 12055-23-1, Hafnium oxide 13463-67-7, Titania, uses

(insulator; field-emitting electron source having elec. insulator

involving emitter in micropores formed by anodization or etching)
IT 1317-33-5, Molybdenum disulfide, processes 7782-42-5,
Graphite, processes
(powd., **lubricant**; in manuf. of field-emitting electron
source having elec. insulator involving emitter in micropores
formed by anodization or etching)

L36 ANSWER 9 OF 15 HCA COPYRIGHT 2006 ACS on STN

124:121557 In situ analysis of the tribochemical films formed by SiC
sliding against Mo in partial pressures of SO₂, O₂, and H₂S gases.
Singer, I. L.; Le Mogne, T.; Martin, J. M. (Naval Res. Laboratory,
Washington, DC, 20375, USA). Journal of Vacuum Science &
Technology, A: Vacuum, Surfaces, and Films, 14(1), 38-45 (English)
1996. CODEN: JVTAD6. ISSN: 0734-2101. Publisher: American
Institute of Physics.

AB XPS and Auger electron spectroscopy (AES) were used to identify gas
reaction layers and tribochem. films formed during reciprocating
sliding tests in an ultrahigh vacuum (UHV) tribometer. Tests were
performed on UHV cleaned SiC pins and Mo flats during or after
exposure to SO₂, O₂, or H₂S gas at pressures around 40 Pa. XPS
identified the gas reaction layers on Mo to be chemisorbed MoS₂
and/or MoO₂ phases less than 1 nm thick. AES of Mo wear
tracks showed tribochem. films similar in compn. to, but thicker
than, the reaction layers. AES of SiC wear scars in all three gases
indicated tribochem. films contg. **Si oxide**
and/or Si sulfide and possibly **graphite**. In addn.,
transfer films of Mo oxysulfide and Mo oxide were found in SO₂ and
O₂ tests, resp., but no transfer films were detected in H₂S tests.
Thermochem. calcns. of stable reaction products of the gas-solid
reactions were in good agreement with the phases inferred from XPS
and AES. An explanation for the agreement between thermochem.
predictions and tribochem. results is given.

IT 7631-86-9D, **Silica**, nonstoichiometric
(in situ anal. of the tribochem. films formed by SiC sliding
against Mo in partial pressures of SO₂, O₂, and H₂S gases)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 48

IT **Lubrication**

(film, in situ anal. of the tribochem. films formed by SiC sliding against Mo in partial pressures of SO₂, O₂, and H₂S gases)

IT 1313-27-5, Molybdena, processes 1317-33-5, Molybdenum disulfide, processes 7440-44-0, Carbon, processes 7631-86-9D, **Silica**, nonstoichiometric 12504-41-5, Silicon sulfide (SiS) 13759-10-9, Silicon disulfide 18868-43-4, Molybdenum dioxide 106604-05-1, Molybdenum oxide (MoO₂-3) (in situ anal. of the tribochem. films formed by SiC sliding against Mo in partial pressures of SO₂, O₂, and H₂S gases)

L36 ANSWER 10 OF 15 HCA COPYRIGHT 2006 ACS on STN

121:284876 Metals and alloys hardened by dispersion of ceramic as well as solid **lubricant** particles, and suitable for sliding electric contacts. Arato, Toshiaki; Aono, Yasuhisa; Tsuruoka, Shigeo; Komuro, Katsuhiro (Hitachi, Ltd., Japan). Eur. Pat. Appl. EP 620286 A1 19941019, 28 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1994-104221 19940317. PRIORITY: JP 1993-58335 19930318.

AB The composites based on elec. conductive metals or alloys contain: (a) dispersed ceramics as ultrafine particles (av. size preferably ≤ 200 nm), esp. to promote hardening; and (b) solid **lubricant** particles or short fibers dispersed for decreased wear resistance, and having the av. particle size of preferably 025-10 μ m. The composites are preferably based on sintered Cu, Al, or Fe, and contain the ultrafine ceramic particles at ≤ 1 wt.% as well as **graphite** whiskers as the **lubricant** particles. The composites can be manufd. by ball milling of metal powder mixt. contg. the added particles for bonding and dispersion. The sintered composites show good elec. cond., good wear resistance, and decreased friction in sliding, and are suitable for sliding elec. contacts, bearings, or compressor parts. Thus, the sintered composite contg. Al 98.7, dispersed ultrafine BN 0.098, and **graphite** whiskers 1.20 wt.% showed elec. resistivity of 14.7 $\mu\Omega$ -cm and tensile yield point of 396 MPa, vs. 23.7 $\mu\Omega$ -cm and 430 MPa for the similar composite with Cu matrix.

IT 7631-86-9, **Silicon dioxide**, uses (dispersed; composites with dispersed ceramic powders and **lubricant** particles in metal matrix for sliding service)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

IT 7782-42-5, Graphite, uses
(whiskers; in metal composites with dispersed ceramic powders and
lubricant particles for sliding service)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C22C001-10

ICS C22C032-00; B22F001-00

CC 56-4 (Nonferrous Metals and Alloys)

Section cross-reference(s): 57, 76

ST copper alloy composite dispersed ceramic; aluminum sintered
composite dispersed ceramic; iron alloy composite fiber
lubricant; elec sliding contact composite ceramic;
graphite whisker metal composite conductor

IT Compressors

Electric switches and switching

Engines

(composite parts for; sintered metal composites with dispersed
ceramic powders and **lubricant** particles for sliding
service)

IT Bearings

(composites for sliding; sintered metal composites with dispersed
ceramic powders and **lubricant** particles for sliding
service)

IT Metals, uses

(composites with dispersed ceramic powders and **lubricant**
particles in metal matrix for sliding service)

IT Railways

(elec. sliding contacts for; sintered metal composites with
dispersed ceramic powders and **lubricant** particles for
sliding service)

IT Electric circuit breakers

(electrodes in; sintered metal composites with dispersed ceramic
powders and **lubricant** particles for)

IT Crystal whiskers
(lubricants; metal composites with dispersed ceramic powders and lubricant particles for sliding service)

IT Carbon fibers, uses
(metal composites with dispersed ceramic powders and lubricant particles for sliding service)

IT Lubricants
(particles; metal composites with dispersed ceramic powders and lubricant particles for sliding service)

IT Electric contacts
(sliding, metal composites with dispersed ceramic powders and lubricant particles for sliding service)

IT 7439-89-6, Iron, uses
(composites with dispersed ceramic powders and lubricant particles in metal matrix for sliding service)

IT 409-21-2, Silicon carbide (SiC), uses 1309-48-4, Magnesium oxide, uses 1314-23-4, Zirconium dioxide, uses 1344-28-1, Aluminum oxide (Al₂O₃), uses 7631-86-9, Silicon dioxide, uses 10043-11-5, Boron nitride (BN), uses 12069-32-8, Boron carbide (B₄C) 12069-94-2, Niobium carbide (NbC) 12070-08-5, Titanium carbide (TiC) 13463-67-7, Titanium dioxide, uses 24094-93-7, Chromium nitride (CrN) 24304-00-5, Aluminum nitride (AlN) 25583-20-4, Titanium nitride 25658-42-8, Zirconium nitride (ZrN)
(dispersed; composites with dispersed ceramic powders and lubricant particles in metal matrix for sliding service)

IT 7429-90-5, Aluminum, uses 7440-50-8, Copper, uses
(sintered; composites with dispersed ceramic powders and lubricant particles in metal matrix for sliding service)

IT 7782-42-5, Graphite, uses
(whiskers; in metal composites with dispersed ceramic powders and lubricant particles for sliding service)

L36 ANSWER 11 OF 15 HCA COPYRIGHT 2006 ACS on STN

104:99548 Direct negatives and direct masters by electroerosion recording. Afzali-Ardakani, Ali; Pennington, Keith Samuel; Sachdev, Krishna Gandhi; Shen, John Chen Shyan; Cohen, Mitchell Simmons (International Business Machines Corp. , USA). Eur. Pat. Appl. EP 147624 A2 19850710, 39 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1984-114119 19841123. PRIORITY: US 1983-566932 19831230.

AB Electroerosion recording materials are claimed for use in prep.

direct offset printing masters and direct negatives. The recording materials are comprised of a polymer support, a hard hydrophobic base layer, a thin metal conductive layer, and a hydrophilic overlayer comprised of a crosslinked binder, a solid conductive **lubricant**, and a particulate scouring agent to inhibit stylus electrode fouling during recording. Thus, a transparent polyester (Mylar) support (50 μ thick) was coated with a 5- μ thick hard base layer comprised of **silica** and a urethane-crosslinked cellulosic binder, deposited, by vacuum evapn., with a 300-nm Al layer, and coated with an overlayer comprised of polytetramethylene ether glycol 1.0, THF 5.0, colloidal **graphite** 10.0, hydroquinone bis(β -hydroxyethyl) ether 0.2, Desmodur N-75 0.5, trimethylolpropane 0.05, and Irganox 1010 0.005 part, dried, cured at 100° to give a 10 μ g/cm² layer, and recorded with a stylus electrode at 30 V. The overlayer was removed prior to use as an offset printing master using oleophilic inks.

IT 7631-86-9, uses and miscellaneous
(hard base layer contg. urethane-crosslinked cellulose acetate butyrate and, for electroerosion recording materials for direct negatives and offset printing plates)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IT 7782-42-5, uses and miscellaneous
(overlayer contg. scouring agent, hydrophilic binder and colloidal, for electroerosion recording materials for direct negatives and offset printing plates)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM B41M005-24
ICS B41C001-10

CC 74-6 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT Recording materials

(electroerosion, with overlayer contg. scouring agent, hydrophilic binder and **graphite** for direct negatives and offset printing plates)

IT Lithographic plates
(offset, electroerosion recording materials with overlayer contg. scouring agent, hydrophilic binder and **graphite** for prepn. of)

IT 7429-90-5, uses and miscellaneous
(conductive layer, for electroerosion recording materials with overlayer contg. scouring agent, hydrophilic binder and **graphite** for direct negatives and offset printing plates)

IT 9004-36-8D, urethane-crosslinked
(hard base layer contg. **silica** and, for electroerosion recording materials for direct negatives and offset printing plates)

IT 7631-86-9, uses and miscellaneous
(hard base layer contg. urethane-crosslinked cellulose acetate butyrate and, for electroerosion recording materials for direct negatives and offset printing plates)

IT 9002-89-5 9003-06-9 9004-36-8 24980-41-4D, polyol derivs.
25190-06-1 25248-42-4D, polyol derivs. 25322-68-3 25322-69-4
26022-09-3
(overlay contg. **graphite**, scouring agent and, for electroerosion recording materials for direct negatives and offset printing plates)

IT 77-99-6 104-38-1 6683-19-8
(overlay contg. scouring agent, **graphite**, hydrophilic binder and, for electroerosion recording materials for direct negatives and offset printing plates)

IT 7782-42-5, uses and miscellaneous
(overlay contg. scouring agent, hydrophilic binder and colloidal, for electroerosion recording materials for direct negatives and offset printing plates)

IT 1314-13-2, uses and miscellaneous 1344-28-1, uses and miscellaneous 13463-67-7, uses and miscellaneous
(scouring agent, for overlay contg. **graphite**, hydrophilic binder and, for electroerosion recording materials for direct negatives and offset printing plates)

Samuel; Sachdev, Krishna Gandhi (International Business Machines Corp. , USA). Eur. Pat. Appl. EP 147641 A2 19850710, 22 pp. DESIGNATED STATES: R: DE, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1984-114276 19841127. PRIORITY: US 1983-567300 19831230.

AB An electroerosion recording material is comprised of an insulating support, a thin conductive layer, and a protective top layer comprised of **graphite** fluoride alone as a solid **lubricant** or in combination with conductive particles of high **lubricity** dispersed in a polymeric binder. The top layer reduces stylus scratching of the conductive layer during electroerosion recording and improves image contrast. The wt. of the top layer is from 2 to 20 $\mu\text{g}/\text{cm}^2$, and the ratio of the binder to the **lubricant** particles is sufficient to provide smudge resistance and prevent flake off during handling. Thus, a 50- μ poly(ethylene terephthalate) film was coated with a subbing layer comprised of **silica** particles dispersed in a urethane-crosslinked cellulose acetate butyrate binder, vapor-deposited with a 20-40-nm Al film, and overcoated with a top layer comprised of Electro-Dag 154 1.5, **graphite** fluoride 0.35, a cellulose acetate butyrate soln. (20% in an 80:20 EtCOMe:PhMe mixt.) 1.40, PhMe 0.5, and EtCOMe 1.0 lb to give a 20 $\mu\text{g}/\text{cm}^2$ layer after drying at 100°. The resulting electroerosion recording material was used satisfactorily with writing signals in the range of from 30 to 60 V.

IT 7782-42-5, uses and miscellaneous
(protective top layer contg. **graphite** fluoride
lubricant and polymeric binder and, for electroerosion recording materials)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IT 7631-86-9, uses and miscellaneous
(underlayer contg. urethane-crosslinked cellulose acetate butyrate and, for aluminum electroerosion recording material with top protective layer contg. **graphite** fluoride
lubricant and conductive particles and polymeric binder)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

IC ICM B41M005-24
CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST electroerosion recording material **graphite** fluoride; **lubricant graphite** fluoride recording material
IT Recording materials
(electroerosion, with protective top layer contg. **graphite** fluoride **lubricant** for reduced scratching by recording stylus)
IT Acrylic polymers, uses and miscellaneous Phenolic resins, uses and miscellaneous Polycarbonates
(protective top layer contg. **graphite** fluoride and conductive particles and, for electroerosion recording materials)
IT Vinyl acetal polymers
(butyral, protective top layer contg. **graphite** fluoride **lubricant** and conductive particles and, for electroerosion recording materials)
IT 7429-90-5, uses and miscellaneous
(electroerosion recording material contg. conductive layer of, top protective layer contg. **graphite** fluoride **lubricant** and conductive particles and polymeric binder for)
IT 11113-63-6
(**lubricant**, protective top layers contg. polymeric binder and, for electroerosion recording materials)
IT 9003-20-7 9003-53-6 9004-35-7 9004-36-8 9004-57-3
9004-70-0 9011-13-6
(protective top layer contg. **graphite** fluoride and conductive particles and, for electroerosion recording materials)
IT 1317-33-5, uses and miscellaneous 1317-36-8, uses and miscellaneous 7439-92-1, uses and miscellaneous 7440-22-4, uses and miscellaneous 7440-31-5, uses and miscellaneous 7440-50-8, uses and miscellaneous 7440-57-5, uses and miscellaneous 7440-66-6, uses and miscellaneous 7440-69-9, uses and miscellaneous 7782-42-5, uses and miscellaneous 7783-96-2 12138-09-9
(protective top layer contg. **graphite** fluoride

lubricant and polymeric binder and, for electroerosion recording materials)

IT 9004-36-8D, urethane-crosslinked
(underlayer contg. **silica** and, for aluminum electroerosion recording material contg. top protective layer contg. **graphite fluoride lubricant** and conductive particles and polymeric binder)

IT 7631-86-9, uses and miscellaneous
(underlayer contg. urethane-crosslinked cellulose acetate butyrate and, for aluminum electroerosion recording material with top protective layer contg. **graphite fluoride lubricant** and conductive particles and polymeric binder)

L36 ANSWER 13 OF 15 HCA COPYRIGHT 2006 ACS on STN

88:30368 Photothermographic papers for electrographic masters.

Kobayashi, Hajime; Yano, Yasuhiro; Endo, Ichiro (Canon K. K., Japan). Jpn. Kokai Tokkyo Koho JP 52092606 19770804

Showa, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1976-7738 19760126.

AB Lubricating powders are added to the surface layers of photothermog. papers contg. org. Ag salts and an elec. insulating binder for electrostatic printing masters. The lubricating powders improves the durability of the electrog. masters. Thus, a 20% poly(vinylbutyral) soln. (in EtOH) 100 g was added to a slurry consisting of Ag behenate 20, MeCOEt 150, and PhMe 150g, then Hg acetate 0.12, KBr 0.2, and phthalazinone 0.5 g were added to the slurry, and the slurry was coated on a paper support. The paper was subsequently coated with a compn. contg. 2,2'-methylenebis(6-tert-butyl-p-cresol) 1.5, phthalazinone 0.3, a 10% cellulose acetate soln. (in Me₂CO) 10, Me₂CO 30, 3,3'-diethyl-2,2'-thiacyclobutanone iodide 0.005, and a chlorotrifluoroethylene resin (Fluorocarb., av. particle size 50 nm) powder 0.05g to give a photothermog. paper. The photothermog. paper was exposed for 12 s through a pos. to a 2500 lx W lamp, and heated for 2 s at 130° to form visible neg. images. The developed photothermog. paper was used as a printing master on and electrog. roller involving the continuous cycles of charging, toner development, image transfer, and cleaning were continuously carried out at the roller surface speed of 600 mm/s: the no. of scratch marks on the master was 3/10-cm-width after 20 min and 7/10-cm-width after 60 min.

IT 7631-86-9, uses and miscellaneous 7782-42-5, uses and miscellaneous 7782-42-5D, fluorinated

(lubricant, photothermog. paper contg., for electrog. masters)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC G03F007-00

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic Processes)

ST photothermog paper electrog master; lubricant powder electrog master; fluorocarbon resin lubricant electrog master

IT Siloxanes and Silicones, uses and miscellaneous (lubricants, photothermog., papers contg., for electrog. masters)

IT Photothermography (photosensitive compns. contg. silver behenate and lubricant powders for, for electrog. masters)

IT Electrography (masters, photothermog. papers contg. silver behenate and lubricant powders for)

IT 1317-33-5, uses and miscellaneous 7631-86-9, uses and miscellaneous 7782-42-5, uses and miscellaneous 7782-42-5D, fluorinated 9002-83-9 9002-84-0 12138-09-9 24937-79-9 24981-14-4 25038-71-5 (lubricant, photothermog. paper contg., for electrog. masters)

L36 ANSWER 14 OF 15 HCA COPYRIGHT 2006 ACS on STN

84:168153 Surface treatment of metals for chipless cold forming.

Lampatzer, Karl; Rausch, Werner; Siemund, Guenther

(Metallgesellschaft A.-G., Fed. Rep. Ger.). Ger. Offen. DE 2424382

19751204, 12 pp. (German). CODEN: GWXXBX. APPLICATION: DE
1974-2424382 19740520.

AB The title parts, such as 0.85%-C steel wires are coated in an aq. phosphate soln. at pH 3.0-6.0 at >50-80° to a layer of 1.5-30 g/m², and the surfaces are heat-dried. The aq. soln. contains 5-400 g/l. solids, such as alkali or NH₄ phosphates 5-200, oxidizing agents (chlorates, bromates, nitrates, and org. nitro compds.) 0-20, reducing agents hydroxylamine compds. 0-10, activators 0-20, and inorg. compds. for strengthening of the layer preferably H₃BO₃ [10043-35-3], but also NaCl, Na₂SO₄, NaNO₃, NaBF₄, or Na₂SiF₆ 0-300 g/l. Suitable activators were Cu, Ni, or Co salts, vanadates, molybdates, fluorides, or fluoride complexes. Some dissolved solids can be replaced by suspended solids as, e.g., SiO₂ [7631-86-9] oxides of Fe, Al, Ti, Mn, talc, graphite, clay, or phosphates of Fe Al, Zn, Mn, or Ca.

IT 7631-86-9, uses and miscellaneous 7782-42-5, uses and miscellaneous

(lubricating coatings contg., for cold drawing of carbon steel wire)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC C23F; B21C

CC 55-6 (Ferrous Metals and Alloys)

ST lubricant phosphate steel wire drawing

IT Lubricants

(coatings, on carbon steel wire for drawing)

IT Surfactants

(lubricating coatings contg., for wire drawing of

carbon steel)

IT 127-68-4 7446-26-6 7558-80-7 **7631-86-9**, uses and
 miscellaneous 7775-09-9 **7782-42-5**, uses and
 miscellaneous 10043-35-3, uses and miscellaneous
 (lubricating coatings contg., for cold drawing of
 carbon steel wire)
 IT 11121-90-7, uses and miscellaneous
 (wire drawing of, lubricating coatings for)

L36 ANSWER 15 OF 15 HCA COPYRIGHT 2006 ACS on STN
 63:9478 Original Reference No. 63:1643f-g Bearing and gear
 lubricants. Brown, Alexander; Wellard, Harold J. (Murex
 Welding Processes Ltd.). GB 991272 **19650505**, 3 pp.
 (Unavailable). APPLICATION: GB 19630502.

AB Lubricants for bearings and steel or steel-bronze gears
 consist of aq. solns. of Na and (or) K silicates (I). The compns.
 may also contain thickeners, such as Na alginate (II), vegetable
 gums, or Ca, Mg, or Al silicates; corrosion inhibitors, such as
 Na₂CrO₄, NaNO₂, NaPO₃, or Na benzoate; or 0.25-10% by wt.
 graphite or MoS₂. In I, the SiO₂: Na₂O mole
 ratios should be 1.6-4:1 or SiO₂: K₂O 1.4-4:1. Thus, 6
 parts by vol. of a mixt. contg. Na₂O 14, SiO₂ 28.1, and
 H₂O 57.9 parts by wt., 5 parts by vol. of a mixt. contg. K₂O 21.3,
 SiO₂ 30.5, and H₂O 48.2 parts by wt., and 5 parts by vol. of
 H₂O, were mixed. II (2.5 g.) was added to 30 ml. of the mixt. and
 when tested on a 4-Ball extreme-pressure app. with a load of 680 kg.
 a run of 1 min. was obtained without seizure. With an
 extreme-pressure oil, this test gave seizure in 10 sec.

IC F06N
 CC 27 (Petroleum and Petroleum Derivatives)
 IT Lubricants
 (alkali metal silicate (aq.))
 IT 1344-09-8, Sodium silicate
 (lubricant from aq.)
 IT 1312-76-1, Potassium silicate
 (lubricants from aq.)

=> => D L37 1-6 CBIB ABS HITSTR HITIND

L37 ANSWER 1 OF 6 HCA COPYRIGHT 2006 ACS on STN
 143:118928 Aluminum phosphate compounds suitable for amorphous coatings

having increased resistance to heat and wear on metal substrates. Sambasivan, Sankar; Steiner, Kimberly A. (Applied Thin Films, Inc., USA). PCT Int. Appl. WO 2005061218 A1 20050707, 77 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US36976 20031119.

AB The Al phosphate compds. suitable for amorphous coatings nominally 0.05-10 μm thick have mol. structure with the O:P-O-Al-O-Al bonding sequence. The coatings are typically dense, smooth, continuous, uniform, and transparent, can be applied as thermal-barrier coatings on metal or alloy substrates, and have nominally high heat resistance with a low friction coeff. The coatings are typically applied by dip coating or spray deposition, and are optionally hardened by dispersion of C or metal-compd. **nanoparticles**. The aluminophosphate coatings are typically applied from alc. bath contg. Al salt (esp. nitrate) and P2O5 or phosphate ester, and prep'd. with refluxing for chem. stability.

IT 7782-42-5, **Graphite**, processes

(coating of; aluminum phosphate compds. for amorphous coatings resistant to heat and wear)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM B32B015-04

ICS B32B015-16; B32B009-04

CC 56-6 (Nonferrous Metals and Alloys)

Section cross-reference(s): 49

ST aluminum phosphate bath amorphous coating metal substrate; aluminophosphate coating **antifriction** heat resistance

IT Coating materials

(**antifriction**; aluminum phosphate compds. for amorphous coatings with low friction)

IT 1344-28-1, Alumina, processes 7782-42-5, **Graphite**

, processes 12597-68-1, Stainless steel, processes 12606-10-9,
Inconel 718 12725-35-8, AISI 1018, processes
(coating of; aluminum phosphate compds. for amorphous coatings
resistant to heat and wear)

IT 1332-37-2, Iron oxide, uses 11118-57-3,
Chromium oxide
(substrates with, coating of; aluminum phosphate compds. for
amorphous coatings resistant to heat and wear)

L37 ANSWER 2 OF 6 HCA COPYRIGHT 2006 ACS on STN

138:110827 Ball-milling: the behavior of **graphite** as a
function of the dispersal media. Janot, Raphael; Guerard, Daniel
(UHP Nancy I, UMR 7555, Laboratoire de Chimie du Solide Mineral,
Vandoeuvre les Nancy, 54506, Fr.). Carbon, 40(15), 2887-2896
(English) 2002. CODEN: CRBNAH. ISSN: 0008-6223.
Publisher: Elsevier Science Ltd..

AB The ball-milling of **graphite** in liq. media leads to well
organized, thin and highly anisometric **graphite** (HAG)
crystals. The presence in the milling container of a liq., which
acts as a **lubricant** and decreases the violence of the
shocks, is relevant. Two liqs. are used: n-dodecane and water.
With dodecane, inert towards **graphite** and the metal of the
milling tools, the powder consists of pure **graphite**
whereas with water, the **graphite** particles are covered
with **nanocrystallites** (15 nm) of a magnetic
compd.: maghemite (γ - **Fe2O3**). The electrochem.
properties of those powders are interesting. The highly anisometric
graphite leads to an irreversible capacity around half of
that for the initial **graphite** powder, in contradiction
with previous results claiming that higher the surface area, the
higher the irreversible capacity. In fact, milling in the presence
of dodecane provokes essentially a cleavage, which increases the
global area, but does not drastically change the no. of edge carbon
atoms, responsible for the increase of the large irreversible
capacity. The **graphite**-maghemite composites present a
high capacity, partly reversible by oxidn.-redn. between iron and
wustite (**FeO**). This reaction is made possible by the
nanometric size of the particles, and therefore their high
reactivity.

IT 12134-66-6P, Maghemite
(composites with **graphite**; effects of water vs.
dodecane milling dispersal media on formation of **graphite**)

-maghemite composites and their electrochem. properties)

RN 12134-66-6 HCA

CN Maghemite (Fe2O3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	3	17778-80-2
Fe	2	7439-89-6

IT 7782-42-5, Graphite, processes

(composites with maghemite; effects of water vs. dodecane milling dispersal media on formation of graphite-maghemite composites and their electrochem. properties)

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IT 1309-37-1P, Iron oxide (Fe2O3

), preparation

(maghemite-type, composites with graphite; effects of water vs. dodecane milling dispersal media on formation of graphite-maghemite composites and their electrochem. properties)

RN 1309-37-1 HCA

CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CC 57-8 (Ceramics)

Section cross-reference(s): 52, 78

ST graphite maghemite composite ball milling prepn magnetic property; water milling media graphite maghemite composite prepn magnetic property

IT Electric charge

(capacity; effects of water vs. dodecane milling dispersal media on formation of graphite-maghemite composites and their electrochem. properties)

IT Ball milling

Mechanical alloying

Surface area

(effects of water vs. dodecane milling dispersal media on

formation of **graphite**-maghemite composites and their electrochem. properties)

IT Secondary batteries
 (graphite-maghemite composite; effects of water vs. dodecane milling dispersal media on formation of **graphite**-maghemite composites and their electrochem. properties)

IT 12134-66-6P, Maghemite
 (composites with **graphite**; effects of water vs. dodecane milling dispersal media on formation of **graphite**-maghemite composites and their electrochem. properties)

IT 7782-42-5, Graphite, processes
 (composites with maghemite; effects of water vs. dodecane milling dispersal media on formation of **graphite**-maghemite composites and their electrochem. properties)

IT 112-40-3, N-Dodecane 7732-18-5, Water, uses
 (dispersal media; effects of water vs. dodecane milling dispersal media on formation of **graphite**-maghemite composites and their electrochem. properties)

IT 1309-37-1P, Iron oxide (Fe2O3), preparation
 (maghemite-type, composites with **graphite**; effects of water vs. dodecane milling dispersal media on formation of **graphite**-maghemite composites and their electrochem. properties)

L37 ANSWER 3 OF 6 HCA COPYRIGHT 2006 ACS on STN

134:150541 Simulation of wear in combustion engines. Popov, V. L.; Gerve, A.; Kehrwald, B.; Smolin, I. Y. (Institute of Strength Physics and Materials Science, Russian Academy of Sciences, Tomsk, 634021, Russia). Computational Materials Science, 19(1-4), 285-291 (English) 2000. CODEN: CMMSEM. ISSN: 0927-0256.
 Publisher: Elsevier Science B.V..

AB The presented model is based on the exptl. findings about the importance of the **nanolayers** (10-70 nm) which are formed on the surface of both the piston ring and cylinder of combustion engines during prodn., running-in and the following use. This layer consists mostly of C coming from fuel, **lubricant**, and **graphite** of the cast iron as well as of **Fe oxides**. The exptl. measured wear rate of about several **nanometer** per h can be explained if we accept interpretation of wear as the "pressing out" of this **nano**-layer. The rate of "pressing" out and the distribution of deformation across

the layer were simulated numerically and compared with a simple anal. model and exptl. data obtained by measuring wear via radioactive isotopes.

CC 55-10 (Ferrous Metals and Alloys)

Section cross-reference(s): 47

IT 1332-37-2, **Iron oxide**, uses 11097-15-7, Cast iron, uses

(simulation of wear in combustion engines consisting of)

L37 ANSWER 4 OF 6 HCA COPYRIGHT 2006 ACS on STN

133:260604 Cleaning medium for magnetic recording devices. Suzuki, Masaki; Inaba, Hiroo (Fuji Photo Film Co., Ltd., Japan). U.S. US 6124030 A 20000926, 18 pp. (English). CODEN: USXXAM.

APPLICATION: US 1997-820106 19970319. PRIORITY: JP 1996-64493 19960321.

AB A cleaning medium such as a tape for magnetic recording devices comprises a nonmagnetic substrate, a lower coating layer, which is overlaid upon the nonmagnetic substrate and primarily contains a binder and nonmagnetic inorg. particles dispersed in the binder, and a cleaning layer, which is overlaid upon the lower coating layer and contains a binder and inorg. particles dispersed in the binder and at least contg. ferromagnetic particles. An at least 50% by wt. portion of the nonmagnetic inorg. particles, which are contained in the lower coating layer, is constituted of granular inorg. particles, which have a mean particle diam. of at most 0.08 μm , or acicular inorg. particles, which have a mean longer axis length falling within the range of 0.05 μm to 0.3 μm and an acicular ratio falling within the range of 3 to 20. The cleaning medium removes dirt from magnetic heads with high cleaning power, such that the wear of the magnetic heads may be small and no scratch may occur on the cleaned magnetic heads.

IT 1309-37-1, **Iron oxide (Fe2O3)**, uses

(**Nanotite**, DPN 250, DPN 245, DPN 250BX, DPN 270BX, DPN 550BX, E 270, E 271, E 300, DEFIC-R, TF 100; cleaning medium for magnetic recording devices)

RN 1309-37-1 HCA

CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC ICM G11B005-708

INCL 428328000

CC 77-8 (Magnetic Phenomena)

IT **Graphitized carbon black**
 (Ketjen Black EC; cleaning medium for magnetic recording devices)

IT **1309-37-1, Iron oxide (Fe2O3),**
 uses
 (Nanotite, DPN 250, DPN 245, DPN 250BX, DPN 270BX, DPN
 550BX, E 270, E 271, E 300, DEFIC-R, TF 100; cleaning medium for
 magnetic recording devices)

IT 57-10-3, Hexadecanoic acid, uses 57-11-4, NAA 175 106-83-2
 107-46-0 112-00-5 112-03-8 112-53-8, 1-Dodecanol 112-80-1,
 9-Octadecenoic acid (9Z)-, uses 123-95-5 301-02-0 334-48-5,
 Decanoic acid 544-63-8, Tetradecanoic acid, uses 1308-38-9,
 Chromium oxide (Cr2O3), uses 1314-13-2, Zinc oxide (ZnO), uses
 1338-39-2 1338-41-6 1338-43-8 2016-54-8 2190-04-7
 6843-97-6 9002-92-0 9004-81-3 9004-95-9 9005-02-1
 9005-07-6 9005-64-5 9005-65-6 9005-67-8 9016-45-9
 9036-19-5 25038-59-9, uses 26266-57-9 26266-58-0 26635-92-7
 31556-45-3 39278-79-0, Coronate L 42557-11-9 59330-00-6
 99550-86-4 106392-12-5 126879-38-7, MT 100T 151849-74-0
 152231-97-5, MT 500HD 152287-44-0, NAA 44 158688-16-5
 191550-09-1, Ucar VROH 202538-04-3, NAA 174 294175-72-7, ZA-G 1
 294179-80-9, ST-M (inorganic compound) 294181-50-3, DEFIC-Y
 294181-52-5, AS 2BM 294181-53-6, TiO 2P25 294181-68-3, Y-LOP
 294184-10-4, Denka DX 80 294201-98-2, HIT 60 294202-05-4, HIT
 70A 294202-13-4, HIT 80G 294202-72-5, G 7 (abrasive)
 294202-73-6, S 1 (abrasive) 294203-15-9, NAA 173K 294203-85-3,
 Nissan Nonion DS 60 294203-87-5, FAL 205 294203-88-6, FAL 123
 294204-11-8, NJLUB LO 294204-31-2, NJLUB IPM 294206-87-4, TA 3 (lubricant)
 294209-48-6, KF 420 294662-61-6, Armid P
 294662-63-8, BA 41G 349141-51-1, TF 140 (oxide) 374712-25-1,
 Tipaque TTO 55S 422277-88-1, Tipaque TTO 55A 668492-45-3, TTO
 51B 668492-47-5, TTO 55C 877035-05-7, MT 100S
 (cleaning medium for magnetic recording devices)

IT 12047-11-9, Barium iron oxide (BaFe12O19)
 (cobalt-doped; cleaning medium for magnetic recording devices)

L37 ANSWER 5 OF 6 HCA COPYRIGHT 2006 ACS on STN

125:314863 Oxidation protective carbon layer for magnetic particles by surfactant reduction. Jeyadevan, B.; Suzuki, Y.; Tohji, K.; Matsuoka, I. (Dep. Resources Eng., Tohoku Univ., Sendai, 980-77, Japan). IEEE Transactions on Magnetics, 32(5, Pt. 2), 4511-4513 (English) 1996. CODEN: IEMGAQ. ISSN: 0018-9464.

Publisher: Institute of Electrical and Electronics Engineers.

AB Encapsulation of fine metal particles by **graphite** would not only provide an oxidn. protective layer but also acts as a solid **lubricant** that enables high speed scanning of magnetic tapes almost a writing/recording head. The authors propose a novel method to produce the **graphite** layer on the surface of magnetic particles. First, the surfactant is adsorbed onto the particle and then reduced/decompd. by bombardment with ionized He atoms in the arc discharge chamber. As a result of this treatment, the magnetite particles are uniformly coated with a **graphite** layer of a few **nanometers** thick.

IT 1309-38-2, Magnetite, uses 7782-42-5,
Graphite, uses
 (oxidn. protective carbon layer for magnetic particles by surfactant redn.)

RN 1309-38-2 HCA

CN Magnetite (Fe3O4) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Fe	3	7439-89-6

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

CC 77-8 (Magnetic Phenomena)

IT 1309-38-2, Magnetite, uses 7440-44-0, Carbon, uses
7782-42-5, Graphite, uses

(oxidn. protective carbon layer for magnetic particles by surfactant redn.)

L37 ANSWER 6 OF 6 HCA COPYRIGHT 2006 ACS on STN

71:63448 Exothermic extrusion **lubricants**. Henderson,

Courtland M. (Monsanto Research Corp.). U.S. US 3455132

19690715, 4 pp. (English). CODEN: USXXAM. APPLICATION: US
 1967-642338 19670531.

AB Compns. and methods of use are described for exothermic extrusion **lubricants** useful at $\geq 800^{\circ}\text{F}$. These are mixts.

of reducing agents like Ca₃Si₈ and oxidizing agents consisting of **Fe oxides**, TiO₂, ilmenite, NaNO₃, the fusion product of Na₂CO₃ and **Fe oxide** or of Na₂CO₃ and ilmenite, where the wt. of oxidizing agent is 0.5-10 times that of the reducing agent. Also, <40 wt. % of a dry-film **lubricant** including **graphite**, MoS₂, BN, and metal-free phthalocyanine may be included or B₂O₃, H₃BO₃, or Na or K borates to provide B₂O₃ equiv. to 2-45 wt. %. Thus, extrusions were performed on a 700-ton horizontal press that permitted loading to <184,000 psi. Dies were H-21 tool steel, which yielded 0.5-in. rounds from 3-in.-diam. billets which entered the die at 120° cone angle. A compressed disk of a compn. contg. Ca₃Si₈ 14.7, NaNO₃ 4.9, Fe₂O₃ 16.4, ilmenite 42.0, anhyd. Na₂CO₃ 22.0 wt. %, and 3 in. in diam. and 1/2 in. thick was pushed against the face of the die. Billets of 4340 steel heated to 2100°F. in an inert-atm. induction furnace were then extruded at a ram speed of 5.0 in./sec., forming very good pieces and the condition of the die was good.

IT 1309-37-1, uses and miscellaneous
(**lubricants** contg., exothermic extrusion)

RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IC B21C; C10M

INCL 072042000

CC 55 (Ferrous Metals and Alloys)

ST extrusion **lubricants**; **lubricants** extrusion;
exothermic extrusion **lubricants**

IT **Lubricants**

(exothermic, for extrusion of steel)

IT 497-19-8, uses and miscellaneous 1303-86-2, uses and miscellaneous
1309-37-1, uses and miscellaneous 1317-33-5 1330-43-4
7440-21-3, uses and miscellaneous 7440-70-2, uses and
miscellaneous 7631-99-4, uses and miscellaneous 10043-11-5
12168-52-4 12431-96-8 13463-67-7, uses and miscellaneous
(**lubricants** contg., exothermic extrusion)

=> D HIS L40-

L40 56841 S NANO2 OR NANO3 OR NANO4 OR NANO5 OR NANO6 OR NANO7 OR N
L41 32 S L38 NOT L40

=> D L41 1-32 TI

L41 ANSWER 1 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Thermal control interface coatings and pigments

L41 ANSWER 2 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Functionalization of particles

L41 ANSWER 3 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Process for application of powder coatings to conductive and
non-conductive surfaces

L41 ANSWER 4 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Optically variable pigments having asymmetrical layer structure

L41 ANSWER 5 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Application of conductive adsorbents, activated carbon granules and
carbon fibers as substrates in catalysis

L41 ANSWER 6 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Process for dyeing or printing textile fibre materials with gloss
pigments

L41 ANSWER 7 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Manufacture of surface-modified effect pigments

L41 ANSWER 8 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Application of **nanocrystallization** technology in surface
treatment

L41 ANSWER 9 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Highly viscous molding materials with **nanosize** fillers

L41 ANSWER 10 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Crystallization environment of Kazakhstan microdiamond: evidence
from **nanometric** inclusions and mineral associations

L41 ANSWER 11 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Dyeing textiles using **nanoparticles** with reduced environmental concerns

L41 ANSWER 12 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Infrared barrier for polymer film and fiber products and coatings

L41 ANSWER 13 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Battery structures, self-organizing structures, and related methods

L41 ANSWER 14 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Low-temperature, carbon-free reduction of **iron oxide**

L41 ANSWER 15 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Selective growth of flowerlike carbon structures by Radio Frequency plasma-assisted pulsed-laser deposition

L41 ANSWER 16 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI **Nanostructured** magnetoceramics from hyperbranched polymer precursors

L41 ANSWER 17 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Fine-grained barite in coal fly ash from the Upper Silesian Industrial Region

L41 ANSWER 18 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Durable magnetic recording medium with high recording density and low error rate

L41 ANSWER 19 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Epoxy resin-inorganic particle water dispersions prepared by phase inversion emulsification

L41 ANSWER 20 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Growth of carbon **nanofibers** array under magnetic force by chemical vapor deposition

L41 ANSWER 21 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Preparation of **nanometric** metal, metal oxide, and semiconductor cluster catalysts

L41 ANSWER 22 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Experimental melts to explore the technique of medieval wood ash
glass production and the chlorine content of medieval glass types

L41 ANSWER 23 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Colored effect pigments

L41 ANSWER 24 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Use of **nanodisperse** hydrothermal mineral deposits to
improve resonance effects of light quanta for health purposes

L41 ANSWER 25 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Dust models with tight abundance constraints

L41 ANSWER 26 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Peak separation method for measuring size distribution of
nano-crystallites

L41 ANSWER 27 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Catalyst for alcohol synthesis

L41 ANSWER 28 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Benzene hydrogenation over iron. 1. Specific activities and
kinetic behavior over unsupported iron and iron dispersed on
silicon dioxide, aluminum oxide, carbon, and doped
carbon

L41 ANSWER 29 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI A fit to the interstellar extinction curve without **graphite**

L41 ANSWER 30 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Nitrogen oxide purging catalyst

L41 ANSWER 31 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Spectral determination of boron in saline clays

L41 ANSWER 32 OF 32 HCA COPYRIGHT 2006 ACS on STN
TI Study of the matrix effect on lanthanide spectral intensity

=> D L38 1,2,6,7,11,23 CBIB ABS HITSTR HITIND

L38 ANSWER 1 OF 40 HCA COPYRIGHT 2006 ACS on STN

144:159975 Thermal control interface coatings and pigments. Coombs, Paul G.; Markantes, Charles T.; Phillips, Roger W. (Jds Uniphase Corporation, USA; Flex Products, Inc., a Corporation of the State of California). U.S. Pat. Appl. Publ. US 2006023327 A1 20060202, 23 pp., Division of U.S. Ser. No. 152,593. (English). CODEN: USXXCO. APPLICATION: US 2005-237076 20050928. PRIORITY: US 2002-2002/152593 20020520.

AB An optical structure is described comprising a reflector; a spacer layer with a spacer thickness disposed on the reflector; and an absorber layer disposed on the spacer layer, the absorber layer having an absorber thickness providing a transmittance through the absorber layer at 5-85% wherein the reflector has a reflector thickness, the spacer thickness and the absorber thickness are selected to achieve an av. first reflectivity of not more than 50% between 400-700 nm and an av. second reflectivity of not less than 50% between 4-40 μ m. The optical structure may provide low chroma and brightness in the visible region and low emissivity in the IR region, where the reflectivity and transmission of the layers are selectively controlled through the thickness of the layers such that the visual reflectivity and color is independent of the IR properties of the absorber and reflector layers. An optical interference structure is also described comprising an aluminum reflector; a first dielec. layer disposed on the aluminum reflector, the first dielec. layer comprising MgF₂ having a first dielec. thickness of 55 nm; a first absorber layer comprising 7 nm of chromium disposed on the first dielec. layer; a second dielec. layer disposed on the first absorber layer, the second dielec. layer comprising MgF₂ having a second dielec. thickness of 55 nm; and a second absorber layer comprising 2.5 nm of chromium disposed on the second dielec. layer, the second absorber layer.

IT 1317-61-9, **Iron oxide**, uses

(absorbing spacer material; thermal control interface coatings and pigments for optical interference structure)

RN 1317-61-9 HCA

CN Iron oxide (Fe₃O₄) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 7782-42-5, **Graphite**, uses

(dielec. flake substrate; thermal control interface coatings and pigments for optical interference structure)

RN 7782-42-5 HCA
 CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IT 1309-37-1, Ferric oxide, uses
 7631-86-9, Silicon dioxide, uses
 113443-18-8, Silicon oxide (SiO
)
 (spacer layer; thermal control interface coatings and pigments
 for optical interference structure)

RN 1309-37-1 HCA
 CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 7631-86-9 HCA
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

RN 113443-18-8 HCA
 CN Silicon oxide (SiO) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Si	1	7440-21-3

INCL 359883000

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related
 Properties)

IT 1317-61-9, Iron oxide, uses 1344-70-3,
 Copper oxide 11104-61-3, Cobalt oxide
 (absorbing spacer material; thermal control interface coatings
 and pigments for optical interference structure)

IT 1344-28-1, Alumina, uses 7782-42-5, Graphite,
 uses 7787-59-9, Bismuth oxychloride 10043-11-5, Boron nitride,
 uses
 (dielec. flake substrate; thermal control interface coatings and
 pigments for optical interference structure)

IT 1306-38-3, Ceric oxide, uses 1309-37-1, **Ferric oxide**, uses 1309-48-4, Magnesium oxide, uses 1309-64-4, Antimony trioxide, uses 1312-43-2, Indium oxide 1312-81-8, Lanthanum oxide 1313-97-9, Neodymium oxide 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1314-35-8, Tungsten trioxide, uses 1314-36-9, Yttrium oxide, uses 1314-61-0, Tantalum pentoxide 1314-98-3, Zinc sulfide, uses 1332-29-2, Tin oxide 7440-21-3, Silicon, uses 7440-56-4, Germanium, uses 7631-86-9, **Silicon dioxide**, uses 7784-18-1, Aluminum fluoride 7787-32-8, Barium fluoride 7789-24-4, Lithium fluoride, uses 7789-75-5, Calcium fluoride, uses 9002-84-0, Polytetrafluoroethylene 12036-32-7, Praseodymium oxide (Pr2O3) 12055-23-1, Hafnium oxide 12060-58-1, Samarium oxide 12068-55-2, Aluminum sodium fluoride (Al3Na5F14) 12069-85-1, Hafnium carbide 12770-85-3, Europium oxide 13709-38-1, Lanthanum fluoride 13709-42-7, Neodymium fluoride 13765-24-7, Samarium fluoride 13768-86-0, Selenium trioxide 13775-53-6 18358-13-9, Methacrylate, uses 25067-11-2D, FEP, fluorinated 25817-87-2, Hafnium nitride 37317-01-4, Cerium fluoride 113443-18-8, **Silicon oxide (SiO)**
(spacer layer; thermal control interface coatings and pigments for optical interference structure)

L38 ANSWER 2 OF 40 HCA COPYRIGHT 2006 ACS on STN

142:432390 Functionalization of particles. Bunce, Timothy Rex; Parbhoo, Bhukandas; Chevalier, Pierre (Dow Corning Ireland Limited, Ire.). PCT Int. Appl. WO 2005039753 A1 20050506, 53 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-EP11611 20041008. PRIORITY: GB 2003-24147 20031015; GB 2004-3131 20040212.

AB This powd. substrate is functionalized by passing a gas into a means for forming excited and/or unstable gas species, typically an atm. pressure plasma or the like and treating the gas such that, upon leaving said means, the gas comprises excited and/or unstable gas

species which are substantially free of elec. charge. The gas comprising the excited and/or unstable gas species which are substantially free of elec. charge is then used to treat a powd. substrate and a functionalizing precursor in a downstream region external to the means for forming excited and/or unstable gas, wherein neither the powd. substrate nor the functionalizing precursor were subjected to steps (i) and (ii) and wherein said functionalizing precursor is introduced simultaneously with or subsequent to introduction of the powd. substrate. Preferably the method takes place in a fluidized bed.

IT 1309-37-1P, **Ferric oxide**, preparation
7631-86-9P, **Silica**, preparation 7782-42-5P
, **Graphite**, preparation
(functionalization of particles using an excited or unstable gas)
RN 1309-37-1 HCA
CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7631-86-9 HCA
CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM B01J019-08
ICS B01J008-18; B01J008-42; C01B033-18; C01B033-16; C08G077-06
CC 48-11 (Unit Operations and Processes)
Section cross-reference(s): 9
IT **Nanostructures**
(carbon and silicon; functionalization of particles using an excited or unstable gas)
IT **Nanotubes**
(carbon; functionalization of particles using an excited or unstable gas)
IT 471-34-1P, Calcium carbonate (CaCO₃), preparation 497-19-8P,
Sodium carbonate, preparation 575-54-2P, Penicillins 1303-86-2P,
Boron oxide (B₂O₃), preparation 1305-78-8P, Calcium oxide (CaO),

preparation 1309-37-1P, **Ferric oxide**,
 preparation 1313-59-3P, Sodium oxide, preparation 1314-13-2P,
 Zinc oxide (ZnO), preparation 1314-23-4P, Zirconium oxide (ZrO₂),
 preparation 1314-41-6P, Lead oxide (Pb₃O₄) 1317-36-8P, Lead
 oxide (PbO), preparation 1317-38-0P, Cupric oxide, preparation
 1344-28-1P, Alumina, preparation 7440-44-0P, Carbon, preparation
7631-86-9P, Silica, preparation 7723-14-0P,
 Phosphorus, preparation 7757-79-1P, Potassium nitrate, preparation
7782-42-5P, Graphite, preparation 9003-07-0P,
 Polypropylene 12057-24-8P, Lithium oxide, preparation
 14807-96-6P, Talc, preparation 16833-27-5P, Oxide
 (functionalization of particles using an excited or unstable gas)
 IT 13463-67-7P, Titanium dioxide, preparation
 (nanoparticles; functionalization of particles using an
 excited or unstable gas)

L38 ANSWER 6 OF 40 HCA COPYRIGHT 2006 ACS on STN

140:358837 Process for dyeing or printing textile fibre materials with
 gloss pigments. Bujard, Patrice; Strahm, Ulrich; Kaenzig, Alex
 (Ciba Specialty Chemicals Holding Inc., Switz.). PCT Int. Appl. WO
 2004035911 A2 20040429, 28 pp. DESIGNATED STATES: W: AE, AG, AL,
 AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ,
 DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID,
 IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
 MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,
 SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
 VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY,
 DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT,
 SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO
 2003-EP11188 20031009. PRIORITY: EP 2002-405889 20021017.

AB The title process, for dyeing or printing textile fiber materials,
 where a gloss pigment A or B is used comprises A(a) a core
 consisting of a substantially transparent or metal reflecting
 material and A(b) ≥ 1 coating substantially consisting of
 ≥ 1 **Si oxides** where the O/Si molar ratio
 av. 0.03-0.95, or B(a) a core substantially consisting of ≥ 1
Si oxides where the O/Si molar ratio av.
 0.03-0.95. A layer of .apprx.50 nm NaCl is
 vapor-deposited onto a metallic carrier in a vacuum chamber at
 $\sim 10^{-2}$ Pa, then, at the same pressure, successive layers of
Si, **SiO** and **Si**, are vapor deposited at different
 thicknesses, where by a film having the layer structure

SiO_x/SiO_y/SiO_x is formed.

IT 7631-86-9, **Silica**, uses
(coating for reflective core; dyeing or printing textile materials with glossy color effect pigments)

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O==Si==O

IT 1309-37-1, **Ferric oxide**, uses
7782-42-5, **Graphite**, uses
(dyeing or printing textile materials with glossy color effect pigments)

RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7782-42-5 HCA

CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM D06P001-44

CC 40-6 (Textiles and Fibers)

ST gloss pigment **silicon oxide** textile printing

IT 7631-86-9, **Silica**, uses 13463-67-7, Titania,
uses
(coating for reflective core; dyeing or printing textile materials with glossy color effect pigments)

IT 1309-37-1, **Ferric oxide**, uses
1317-33-5, Molybdenum sulfide (MoS₂), uses 7429-90-5, Aluminum,
uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses
7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-32-6,
Titanium, uses 7440-47-3, Chromium, uses 7440-50-8, Copper, uses
7440-56-4, Germanium, uses 7440-57-5, Gold, uses 7440-66-6,
Zinc, uses 7782-42-5, **Graphite**, uses
(dyeing or printing textile materials with glossy color effect pigments)

Marc; Huber, Adalbert; Schauer, Thadeus (Merck Patent GmbH, Germany). Ger. Offen. DE 10243438 A1 20040325, 7 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2002-10243438 20020918.

AB The title pigments, e.g. holog., pearlescent or goniochromatic pigments, etc., useful in lacquers, water-thinned and powder coatings, paints, printing inks, plastics, concrete, in cosmetic formulations, for the laser marking of papers and plastics, etc., comprise platelet-like substrates, which are coated with ≥ 1 layers from immobilized lower crit. soln. temp. (LCST) and/or upper crit. soln. temp. (UCST) polymers. For example, suspending an olefin groups-modified siloxane LCST polymer (unspecified) in H₂O at 5°, adding Iridin 504, stirring the suspension for 0.5 h at 500 rpm, warming the suspension to 8° and keeping for 20 min, warming to 20°, crosslinking the polymer film ptd. on pigment particles with K₂S₂O₈, washing and drying gave a title pigment which, in a conventional acrylic lacquer showed 8% higher distinctness of image (DOI) value compared to untreated Iridin 504.

IT 1309-37-1, Iron oxide (Fe₂O₃),
uses 7631-86-9, Silica, uses 7782-42-5
, Graphite, uses

(platelets; manuf. of surface-modified effect pigments)

RN 1309-37-1 HCA

CN Iron oxide (Fe₂O₃) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

RN 7782-42-5 HCA
CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

IC ICM C09C001-00
ICS C08K009-10; C09D005-28
CC 42-6 (Coatings, Inks, and Related Products)
ST effect pigment surface modification crosslinked LCST polymer;
iron oxide mica effect pigment surface
modification LCST polysiloxane

IT 7727-43-7, Barium sulfate
(**nanoparticles**; manuf. of surface-modified effect
pigments)

IT 1309-37-1, Iron oxide (Fe2O3),
uses 1344-28-1, Alumina, uses 7429-90-5, Aluminum, uses
7631-86-9, Silica, uses 7782-42-5,
Graphite, uses 13463-67-7, Titanium dioxide, uses
(platelets; manuf. of surface-modified effect pigments)

L38 ANSWER 11 OF 40 HCA COPYRIGHT 2006 ACS on STN

138:339646 Dyeing textiles using **nanoparticles** with reduced
environmental concerns. Sun, Gang; Li, Dapeng (The Regents of the
University of California, USA). PCT Int. Appl. WO 2003035964 A1
20030501, 30 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT,
AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK,
DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,
JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK,
SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW; RW:
AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB,
GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.
(English). CODEN: PIXXD2. APPLICATION: WO 2002-US33037 20021014.
PRIORITY: US 2001-37785 20011022.

AB The present invention employs the use of **nanotechnol.** to
textile coloration. The textiles so produced have good fastness and
greatly reduce environmental concerns. The present invention
provides **nanoparticle** processed textiles, formulations and
methods for producing them.

IT 1309-37-1, Iron oxide, uses
7631-86-9, Silicon oxide, uses
(**nanoparticles**; dyeing textiles using
nanoparticles)

RN 1309-37-1 HCA

CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7631-86-9 HCA

CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O=Si=O

IC ICM D06M013-00

ICS D06M011-00; D06P003-04; C09B067-00
CC 40-6 (Textiles and Fibers)
ST dye textile **nanoparticle**
IT Polyamide fibers, miscellaneous
 (aramid; dyeing textiles using **nanoparticles**)
IT Fibers
 (cellulosic; dyeing textiles using **nanoparticles**)
IT Carbon black, uses
 (dye, Raven 5000; dyeing textiles using **nanoparticles**)
IT Textiles
 (dyed; dyeing textiles using **nanoparticles**)
IT Gossypium hirsutum
Hemp fibers
Jute fibers
 Nanoparticles
Ramie fibers
Silk
Wool
 (dyeing textiles using **nanoparticles**)
IT Acetate fibers, miscellaneous
Acrylic fibers, miscellaneous
Metallic fibers
Polyamide fibers, miscellaneous
Polyester fibers, miscellaneous
Rayon, miscellaneous
Spandex fibers
Vinal fibers
Vinyon fibers
 (dyeing textiles using **nanoparticles**)
IT Polysulfones, uses
 (fiber; dyeing textiles using **nanoparticles**)
IT Ceramics
 (fibers; dyeing textiles using **nanoparticles**)
IT Fluoropolymers, uses
Polyamides, uses
Polycarbonates, uses
Polyesters, uses
Polyoxymethylenes, uses
 (fibers; dyeing textiles using **nanoparticles**)
IT Acrylic polymers, uses
 (fibers; dyeing textiles using **nanoparticles**)
IT Carbon fibers, miscellaneous

(graphite; dyeing textiles using nanoparticles
)
IT Technology
(nanotechnol.; dyeing textiles using nanoparticles)
IT Polyimides, uses
(polyamide-, fibers; dyeing textiles using nanoparticles
)
IT Polyketones
(polyether-, fiber; dyeing textiles using nanoparticles
)
IT Polyimides, uses
Polysulfones, uses
(polyether-, fibers; dyeing textiles using nanoparticles
)
IT Synthetic polymeric fibers, uses
(polyether-polyketones; dyeing textiles using nanoparticles)
IT Polyamides, uses
Polyethers, uses
(polyimide-, fibers; dyeing textiles using nanoparticles
)
IT Polyethers, uses
(polyketone-, fiber; dyeing textiles using nanoparticles
)
IT Polyamides, uses
(polymer matrix; dyeing textiles using nanoparticles)
IT Vinyl compounds, uses
(polymers, thickener; dyeing textiles using nanoparticles
)
IT Polyethers, uses
(polysulfone-, fibers; dyeing textiles using nanoparticles)
IT Synthetic polymeric fibers, uses
(polysulfones; dyeing textiles using nanoparticles)
IT Rayon, miscellaneous
(reconstituted; dyeing textiles using nanoparticles)
IT Polyoxyalkylenes, uses
Polysiloxanes, uses
(thickener; dyeing textiles using nanoparticles)
IT Acetate fibers, miscellaneous
(triacetate; dyeing textiles using nanoparticles)

IT 1400-26-6, Linin
(dyeing textiles using **nanoparticles**)

IT 25038-74-8 25587-80-8 26098-55-5
(fibers, assumed monomers; dyeing textiles using
nanoparticles)

IT 9002-84-0, PTFE 9002-86-2, PVC 9002-88-4, Polyethylene
9003-07-0, Polypropylene 9003-53-6, Polystyrene 24936-74-1
24937-16-4, Nylon 12 25035-04-5, Nylon 11 25038-59-9, PET, uses
32131-17-2, Nylon 66, uses
(fibers; dyeing textiles using **nanoparticles**)

IT 1309-37-1, Iron oxide, uses 1317-38-0,
Copper oxide, uses 7439-89-6D, Iron, compds. 7440-22-4D, Silver,
compds. 7440-50-8D, Copper, compds. 7440-66-6D, Zinc, compds.
7631-86-9, Silicon oxide, uses
20667-12-3, Silver oxide
(**nanoparticles**; dyeing textiles using
nanoparticles)

IT 122-18-9, Hexadecylbenzyldimethyl ammonium chloride
(surfactants; dyeing textiles using **nanoparticles**)

IT 9002-89-5, Polyvinyl alcohol 9003-20-7, Polyvinyl acetate
9004-34-6, Cellulose, uses 9005-25-8, Starch, uses 25322-68-3,
Peg
(thickener; dyeing textiles using **nanoparticles**)

L38 ANSWER 23 OF 40 HCA COPYRIGHT 2006 ACS on STN

127:347662 Colored effect pigments. Bujard, Patrice; Bonnard, Natacha
(Ciba Specialty Chemicals Holding Inc., Switz.). Eur. Pat. Appl. EP
803549 A2 19971029, 17 pp. DESIGNATED STATES: R: CH, DE,
FR, GB, IT, LI, NL. (German). CODEN: EPXXDW. APPLICATION: EP
1997-810238 19970417. PRIORITY: CH 1996-1053 19960425.

AB The title pigments, with good goniochromaticity, comprise
essentially transparent or metallic reflective materials coated with
Si oxides (O-Si ratio 0.25-0.95:1). Glass was
coated with a 50-nm film of Al and then, at 0 pressure
0.35 mPa, with a 104-nm film of **Si oxide**
(O-Si ratio 0.35:1) to give a pigment with CIE colorimetric values
L* (brightness) 65, C* (satn.) 50, and h (color tone) 359.

IT 1309-37-1, Iron oxide (Fe2O3),
uses 7631-86-9, Silicon dioxide, uses
7782-42-5, Graphite, uses 11126-22-0,
Silicon oxide
(colored effect pigments)

RN 1309-37-1 HCA
 CN Iron oxide (Fe2O3) (8CI, 9CI) (CA INDEX NAME)
 *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
 RN 7631-86-9 HCA
 CN Silica (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

O—Si—O

RN 7782-42-5 HCA
 CN Graphite (8CI, 9CI) (CA INDEX NAME)

C

RN 11126-22-0 HCA
 CN Silicon oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Si	x	7440-21-3

IC ICM C09C001-00
 ICS C08K003-00; C09D007-12
 CC 42-6 (Coatings, Inks, and Related Products)
 ST pigment effect colored; aluminum effect pigment; silicon
 oxide effect pigment; metal effect pigment
 IT 1309-37-1, Iron oxide (Fe2O3),
 uses 1313-99-1, Nickel oxide (NiO), uses 1314-13-2, Zinc oxide,
 uses 1314-23-4, Zirconium dioxide, uses 1317-33-5, Molybdenum
 disulfide, uses 1332-29-2, Tin oxide 1335-25-7, Lead oxide
 7429-90-5, Aluminum, uses 7439-98-7, Molybdenum, uses 7440-02-0,
 Nickel, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses
 7440-32-6, Titanium, uses 7440-47-3, Chromium, uses 7440-50-8,
 Copper, uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses
 7631-86-9, Silicon dioxide, uses
 7782-42-5, Graphite, uses 7783-40-6, Magnesium
 fluoride 7789-75-5, Calcium fluoride, uses 11099-11-9, Vanadium
 oxide 11104-61-3, Cobalt oxide 11126-22-0,
 Silicon oxide 13463-67-7, Titanium dioxide, uses